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THE AMERICAN PHYSIOTHERAPY ASSOCIATION

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Volume 24 **NOVEMBER-DECEMBER** **Number 6**

Metta Baxter First Physical Therapist Awarded Legion of Merit

Approximately 1,000 physical therapists are doing a great job with Army hospitals all over the world. Commanding Officers are quick to take issue with anyone who dares to doubt their value, but until recently little public recognition has been given them. Lieutenant Metta L. Baxter of the 21st General Hospital in Italy is the first to be cited "for exceptionally meritorious conduct in the performance of outstanding service from July 8th, to September 8th, 1943." The War Department has awarded her the Legion of Merit.

Were anyone to discuss this award with Lieutenant Baxter, she would no doubt reply that she "didn't really do anything outstanding to deserve it," but that is not the point . . . in the eyes of her Commanding Officer and her associates, she was performing "exceptional" work. Indications of her ingenuity are present even in her reports to Headquarters.

"We found a bicycle here and have constructed measuring devices and other exercise equipment. We have a couple of home-made whirlpools which our ingenious plumbers constructed out of the bottom of a steam table," and from a personal letter to Major Vogel, director of physical therapists, "In addition to the regular physical therapy work, I find we have to supervise installations, persist in putting in work orders and hounding depots until equipment is obtained. My motto has been: Never take *no* for an answer and there is no such word as *can't*."

Lieutenant Baxter is a keen, alert physical therapist, intensely interested in maintaining professional standards. In order that physical therapists assigned to hospitals in Italy might have the opportunity to discuss their professional problems, she organized the first group luncheon of this nature to enable all physical therapists to "discuss various things pertaining to our departments" and "to make plans for the future."

Lieutenant Baxter is a graduate of the Kansas State College at Manhattan, Kansas, holding a B.S. degree with major in physical education. She is a graduate of the Training Course in Physical Therapy Department, Army Medical Center, Washington, D. C., receiving her certificate in 1941. She was assigned to the 21st General Hospital while it was stationed at Camp Benning, Georgia, and was promoted to First Lieutenant in November 1943.

Lieutenant Baxter's home is at 1302 Eagle Vista Drive, Los Angeles, California.

Prostigmine as an Adjunct in the Treatment of Spastic Cerebral Palsy

Howard J. Schaubel, M.D.

The treatment of spastic cerebral palsy, when compared to the many other conditions encountered in the care of crippled children, is in many instances very disappointing. Any aid, however slight, which can be directed to the cerebral palsy patient for his improvement should most certainly be given serious consideration.

Kabat and Knapp[1] reported the use of prostigmine in the treatment of acute poliomyelitis. They concluded that the drug decreased muscle spasm and improved coordination in patients with anterior poliomyelitis. They demonstrated that the depressant action of prostigmine was on the spinal cord by injecting prostigmine intraspinally on three patients. They found the relaxation of muscle spasm was greater than had been observed following subcutaneous injection of prostigmine.

We began using prostigmine on our cases of poliomyelitis and found it to be a valuable adjunct in the relief of muscle spasm in the acute and subacute phases of the disease. From our observations on the action of prostigmine in infantile paralysis we reasoned the drug might be useful to relieve some of the muscle spasm in our cases of spastic cerebral palsy.

Schweitzer *et al*[2] showed that eserine stimulates the reflexes whereas prostigmine in equivalent amounts depresses them. The authors suggest that this might be due to the fact that prostigmine is lipoid soluble and thus might be able to penetrate into the nerve cell and cause a rise in intracellular acetylcholine concentration which could depress the activity of the cell. Eserine being water soluble remains outside the cell and thus may increase the acetylcholine concentration at the synapse to produce excitation.

Kremer[3] has shown that prostigmine depresses muscle tone and reflexes in man. He maintains the effect is localized on the spinal centers.

Schweitzer and Wright[4] have shown that acetylcholine, like prostigmine, depresses the spinal reflexes of the cat and inhibits strychnine convulsions. They conclude that prostigmine exerts an inhibitory action on the spinal cord and probably depresses the discharge of the anterior horn cells.

We have used prostigmine on thirty-two cases of spastic cerebral palsy. Ten patients have received prostigmine continually for eight months, the remaining twenty-two received the drug continuously from two to eight months. Atropine has been used to counteract the side effects of the prostigmine without producing any apparent inhibition of the depressant action of the prostigmine on the spinal cord. All medication is given orally. In general we have used the following schedule, varying it according to the needs and body size of the patient. Children over age twelve receive 15 mg. prostigmine three times daily with 1/200 gr. atropine sulfate once daily. Patients between the ages of eight and twelve receive 15 mg. prostigmine twice daily with 1/300 gr. atropine sulfate once daily. Youngsters below the age of eight receive 15 mg. prostigmine once daily with 1/600 gr. atropine sulfate once daily.

All the patients have been followed closely by the hospital physical therapist and the author.

The ten patients who have received prostigmine for eight months had been followed in the out-patient clinic of the hospital for a number of years. All had been in the hospital from five to twelve months before the drug was used. All were severe tetraplegics; the ages were from six to fourteen years. Their muscle training program during the hospital period preceding medication had been carefully followed, and little progress had been noted despite the use of all possible surgical procedures indicated in each case. These included tenotomies, neurectomies, stabilizations and tendon transplants. Furthermore, during the premedication hospitalization all

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Acknowledgment is made to Miss Ruth Brown, hospital physical therapist, for her cooperation in this study.

had to be fed by an attendant, and though all could utter sounds, none could be understood. Within three weeks after instituting prostigmine therapy, a definite decrease in muscle spasm, overflow and incoordination was noted in each of the ten patients. Seven patients who had never walked without the aid of anchored walking bars began using the mobile walker, and two months after the beginning of treatment all seven were walking with crutches with no other aid. Three patients who despite surgery and intensive physical therapy never had been able to walk even with the anchored walking bars improved so rapidly that within ten weeks all three were using the mobile walker with good ambulation. At this writing six patients walk using no artificial aid. Three are using crutches and get about nicely without aid from the attending staff. One patient is using crutches but as yet cannot ambulate freely about the ward or physical therapy gymnasium without supervision.

None of the above ten patients could talk and be understood by any of the house staff despite five months or more of training in phonetics by our school teaching staff. However, within six weeks after the initial prostigmine medication nine patients could say understandable words, and after eight months of prostigmine therapy plus further training in phonetics only one patient has difficulty in speech although with patience one can carry on a simple conversation with her.

Because of marked muscle spasm, overflow and incoordination all ten patients had to be fed by an attendant during their hospital stay previous to prostigmine medication. Within nine weeks after starting the drug, seven patients could feed themselves and needed aid only in drinking. Within four months nine patients were feeding themselves and seven were able to drink liquids without attendant aid. After eight months nine patients eat and drink without help and the remaining one needs assistance only while consuming liquids.

Of the remaining group of twenty-two cerebral palsy patients, six are tetraplegics, eleven are paraplegics and five are hemiplegics. We do not have a satisfactory pre-prostigmine record of this group but at present are following them along with a control group of cerebral palsy patients with similar pathologic patterns of spasticity; the control group, of course, is receiving no prostigmine. In the group of twenty-two cases treated with prostigmine we have noted a more rapid decrease in muscle spasm, overflow and incoordination than we have found in the numerous similarly affected cerebral palsy patients treated in this institution in the past years. When the prostigmine treated patients are compared with the control group in the hospital now there is a definite and marked difference in favor of the group receiving medication, in that the prostigmine treated group is progressing more rapidly in their muscle and phonetic training. We find also all the tetraplegics in the prostigmine group can eat without aid and easily maintain their own toilet. This in direct contrast to our so-called control group, who are following the usual very slow path we have considered the heritage of the cerebral palsy child. A forthcoming later report will consider a more detailed account of this latter study.

SUMMARY

Prostigmine has been given to thirty-two spastic cerebral palsy patients with a subsequent significant decrease in muscle spasm, overflow and incoordination in all cases. All the patients demonstrated a marked improvement in speech when an initial speech defect was present.

Ten patients have received prostigmine continuously with atropine orally for eight months; twenty-two have received the same medication for from two to six months. In no case has there been a toxic or other detrimental reaction to the medication.

CONCLUSION

Prostigmine is a valuable adjunct to the muscle and phonetic training program in spastic cerebral palsy.

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State Services for Crippled Children Under the Provisions of the Social Security Act

A. L. Van Horn, M.D.

During the past eight years Federal aid to the States for services for crippled children authorized under the provisions of title V, part 2, of the Social Security Act has made possible the development of a nationwide program of medical, surgical, and aftercare services for the physical restoration and social readjustment of crippled children.

Responsibility for the administration of this medical-care program at the Federal level is vested in the Chief of the Children's Bureau of the United States Department of Labor. The Children's Bureau maintains a professional staff in its Division of Health Services which serves in an advisory and consultative capacity to State agencies in the development of State programs and in provisions for their extension and continued improvement. The Bureau has been fortunate in being able to employ recently Miss Florence A. Phenix, who is a member of the American Physiotherapy Association and who will be a valuable addition to our professional staff. The Children's Bureau has an advisory committee on services for crippled children composed of eminent authorities representing the various fields of interest related to the health and welfare of the crippled child, such as orthopedic surgery, plastic surgery, pediatrics, public-health nursing, medical-social work, physical therapy, special education, and so forth. Miss Lucy E. Blair, of Madison, Wisconsin, represents the field of physical therapy and has been designated by the American Physiotherapy Association as its official representative on the Children's Bureau advisory committee. This advisory committee usually meets once a year to consider problems relating to the administration of the crippled children's program and makes specific recommendations regarding the broad principles and policies that should serve as a guide in the administration of this program. These recommendations, when adopted by the Children's Bureau, are in turn transmitted to the State agencies for their guidance and use in the development and administration of the State programs.

In accordance with the provisions of the Social Security Act, the State crippled children's programs are administered under *State* plans developed by the official State agency and approved by the Chief of the Children's Bureau. Each State plan must meet certain specified requirements under the provisions of the act. When the State plan is found to comply with these requirements, it is then approved, and Federal funds are granted to the State for carrying out the provisions of the approved State plan. Expenditures made under the plan from State, local, and Federal funds are audited at periodic intervals by field auditors of the Children's Bureau. The official State agencies that administer services for crippled children are those so designated under State law. At the present time most of the State programs are administered by State health departments, although in some States they are administered by the State department of public welfare, the department of education, the State crippled children's commission, or the State university.

Although all State plans have certain fundamental features in common, each individual State plan is designed to meet the particular needs of that State and is administered solely by the official State agency. With few exceptions, all State crippled children's agencies have a general advisory committee composed of representative citizen groups to confer with the agency on the needs and resources within the State and on matters dealing with the broad general policies

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Read before the annual meeting of the American Physiotherapy Association, New York City, May 19, 1944.

under which the program is administered. Technical advisory committees also are appointed in the vast majority of States to advise the State agencies regarding technical problems, such as qualification standards for the selection of orthopedic surgeons and other professional personnel whose services are to be employed under the program, standards for the selection of hospitals, basis of remuneration for professional services, and similar matters. In the development of standards and other policies by the State agency, the recommendations made by the Children's Bureau advisory committee generally are used as a guide. In the fiscal year 1940, before the curtailment of State services due to losses of professional personnel taken into the armed forces was felt appreciably, the services of about 560 orthopedic surgeons were being used in this program; of that number approximately 85 per cent of the surgeons were certified by the American Board of Orthopedic Surgery and the majority of the remaining group were eligible for certification. Also, of the 619 hospitals used by State agencies during this same period, approximately 90 per cent were approved by the American College of Surgeons. This gives some indication of the level of standards developed by State agencies under State plans.

Each State plan provides for locating crippled children and for skilled diagnostic services by qualified physicians and surgeons at State clinics located in permanent centers in urban areas and also held periodically in outlying districts so as to be accessible to all parts of the State. A State register of crippled children has been established in the offices of the official State agency in each State. The number of crippled children reported on such registers as of December 31, 1943, was about 364,000. In most States any child is eligible for admission to the diagnostic clinic in order that his needs may be ascertained. Treatment services by qualified specialists, such as orthopedic surgeons and pediatricians, are provided in approved clinics and hospitals for children found to be in need of care. Provisions such as the furnishing of any necessary appliances, and for follow-up services also are made for convalescent care and other aftercare services by the attending specialist and by other professional workers as indicated—public-health nurses, phyical therapists and medical-social workers.

Although this public medical-care program is relatively small in terms of volume of services, nevertheless it has served a useful purpose not only in providing a much needed service for physically handicapped children throughout the country but also in the development of certain principles and technics in the administration of a public medical-care program. These principles and technics have been worked out at the State level and in full cooperation with the various professional and lay groups concerned. It has been gratifying that this medical-care program has been developed and conducted for a period of eight years with practically no opposition whatever. On the contrary, the program has received excellent cooperation from all groups. It is believed that this unusual experience in the administration of a public medical-care program is due in part to the universal interest in the group of children for whom the program is designed but also to the fact that the programs are developed and administered by the official *State* agency in cooperation with professional and lay groups within the State, and that Federal participation is based on the grant-in-aid principle with the Children's Bureau serving in an advisory and consultative capacity.

During the fiscal year 1941, before the program had to be curtailed sharply because of the war, about 210,000 visits were made by crippled children to diagnostic and treatment clinics conducted by State agencies, 43,000 children were provided with 1,500,000 days of hospital care, 7,000 children were provided with 480,000 days of convalescent care, approximately 220,000 visits were made by public-health nurses on behalf of crippled children, 210,000 field or office visits were made for physical therapy services, 16,000 admissions were made for medical-social services, and over 7,700 children were referred to the State vocational-rehabilitation service.

During this same period the amount of Federal funds paid to the States for services for crippled children was $3,920,000. The total amount budgeted from all funds (State, local, and Federal) included under the program was about $7,000,000.

Under the Barden-LaFollette Vocational Rehabilitation Act the expanded State rehabilitation services may provide medical and hospital care for eligible individuals of employable age, some of whom will be under 21 years of age. The development of such services for crippled youths in this age group would duplicate in large measure the services already available in every State and Territory under the State crippled children's services. Accordingly, the Federal Office of Vocational Rehabilitation and the Division of Health Services of the Children's Bureau have agreed on certain principles and policies that will avoid such duplication of services. These

principles and policies have been set forth in joint memoranda from the Children's Bureau and the Office of Vocational Rehabilitation, directed to all State crippled children's agencies and State vocational-rehabilitation agencies. In general, they refer to:

1. The importance of conferences between State officials responsible for the administration of these respective services in order that mutual understanding and agreement can be reached between the two services regarding policies and procedures that will serve the best interests of crippled children of employable age.

2. Referral by the State vocational-rehabilitation service to the crippled children's agency of patients under 21 years of age who have a crippling condition for which services may be provided under the crippled children's program.

3. Acceptance by the State crippled children's agencies of patients under 21 years of age referred to them by the vocational-rehabilitation services.

4. Exchange of information between the two agencies of all relevant information necessary for providing the needed services to any individual eligible for care under the respective programs.

5. Referral by the crippled children's agency to the State vocational-rehabilitation service of crippled youths of employable age who may be eligible for vocational training and preparation for remunerative employment.

6. Cooperation between the two State services in the development of the new medical-care features under the State vocational-rehabilitation services.

Never before has there been such an opportunity for providing services for the physically handicapped as exists under our present legislation. No crippled child in any State or Territory need be denied the necessary services required to bring about the greatest possible restoration and correction of his crippling condition. Likewise, under the new Barden-LaFollette Act corrective medical services and hospital care may now be provided for individuals of employable age having handicapping conditions, and they also may be trained in an occupation for which they are suited and thus be prepared for remunerative employment. The United States Employment Service gives special consideration to the placement of physically handicapped persons in industry. There is still much to be done, but the progress that has been made since 1935 in the development of services for the physically handicapped is encouraging. We can look forward with greater confidence to the future development of a comprehensive plan of services that will meet more adequately their mental, physical and social needs.

Hydrogalvanism

Frieda Gassin

The editorial, "What's New?", in THE PHYSIOTHERAPY REVIEW, prompted this report on hydrogalvanism and on some very satisfactory results obtained by it.

The idea of an electrical apparatus which can introduce a galvanic current in any bathtub, where the patient can safely touch any of the metal equipment in the tub is likely first to cause gasps of disbelief and fear. However, it is such an apparatus which is now available and has been used by us since July 1943.

Hydrogalvanism was probably first employed medically in 1852 in New York City when a metal plater cured a severe ulcer by immersing his hand in his metal plating bath as reported by Dr. Poey[1].

Further interest was stimulated when, in 1902, an arthritic, J. J. Stanger, a tanner, accidentally slipped his hand in a galvanic bath filled with tannin solution which he used in his work. As

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his arthritic pains were relieved he continued treating himself with increasing improvement. The outcome of that accident resulted in the development of the "Stanger Bath,"[1]—a hydrogalvanic bath—which has been used for therapeutic purposes in Europe for many years.

In the United States of America the galvanic body bath has been used in only a few sanitaria employing very cumbersome equipment until 1941, when an improved hydrogalvanic apparatus was introduced. This was first used in the New York Polyclinic Medical School and Hospital. Since then it has been employed in numerous hospitals and also in private offices of a number of physicians.

Two interconnected circuits of very smooth galvanic current are employed, one designed primarily to be conducted through the body longitudinally and one transversely when using the full body bath. The patient lies in a tub of water in which a solution of tannin and other chemicals are poured. This makes the water opaque and assists in producing a smooth painless passage of the current through the body. The galvanic current is introduced into the water by a series of carbon electrodes which can be arranged in the tub according to the case under treatment and are operated by an excellent galvanic apparatus especially built for hydogalvanism. (For a complete detailed description of the apparatus and technic, see the excellent article by Dr. Richard Kovacs.[2])

We have found the hydrogalvanic bath of especial value in generalized arthritis, even including the Marie Strumpel type—two cases of the latter being among our most enthusiastic patients. We also use the full body bath for low back strains and certain myasthenic states. The brush electrode usually used during the treatment for muscle stimulation not only assists in relieving congestion but is valuable also in determining painful areas not otherwise demonstrable: that is, it aids in diagnosis.

Most gratifying results have been obtained in neuritis by the above method and by the use of the separate tanks in which either arms or legs may be treated separately or in combination. Bursitis and fibrositis have yielded to the straight galvanic treatment or in combination with histamine-ion transfer which can be very simply applied.

As circulation is stimulated by the use of the galvanic current, we have treated a number of our neurocirculatory cases, including Buerger's disease, with surprisingly good results. Painful stumps, some of World War I, have been greatly improved. The remark often heard is that the stumps feel "lighter."

It would seem that more general application of hydrogalvanism might bring speedier relief and possibly cure a greater variety of cases than has been realized. The more familiar one becomes with hydrogalvanism, the more one is intrigued by its possibilities, especially if one considers the fact that hydrogalvanism did help in some cases which did not respond to any other form of therapy. So many questions come to mind. Just what happens when the current is applied? How deeply does the current actually penetrate? How much polarity effect is obtained? Why does it cause the amount of relaxation evidenced? Why do so many say they sleep and eat better? To what extent is nerve regeneration affected? Is blood pressure affected and how? What does it mean for the system if the native fluids are charged with electricity or what happens to them under the influence of the current? The answers to these questions it would seem must wait further intensive research.

It is believed that we have a new and very valuable addition to physical therapy armamentarium which should be included in every well-equipped department.

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The Vocational Rehabilitation Program From a Regional and State Viewpoint

Tracy Copp

One of the important aspects of the expanded and reorganized Federal-State Rehabilitation Service is the establishment of regional offices. This represents a major step in the decentralization of field services to State rehabilitation departments.

At the present time, eight regional offices have been established in the following cities: San Francisco, Denver, Kansas City, Minneapolis, Chicago, Atlanta, Washington, and Boston.

Regional representatives attached to these offices are responsible for all matters involved in Federal-State relationships and also for advice and assistance to State agencies with respect to the requirements of the Vocational Rehabilitation Act and the rules and regulations under which the program will operate. The regional office also acts as a coordination agency to bring together in good working relationships the various State services in related fields of work which are constituent services of other Federal programs.

The decentralization of the field service is an important step in the direction of greater responsiveness between the Federal and State agencies and among the States in a region. It is a good starting point for assisting the States to the degree that case loads increase, services to individuals are expedited, and the promises we have made to the public fulfilled.

Two immediate opportunities present themselves to a regional office. One is to meet the needs of the States as the States recognize those needs. The other is to stimulate State services to meet needs which are recognized by the regional office.

Inasmuch as an attempt has been made to combine as far as is consistent with other factors, States having similar problems and facilities for rehabilitation in regional groups, it should be possible to offer services which in many respects will be uniform throughout the region.

Naturally, regional representatives frequently will be called upon to confer with State workers on local situations of an emergency character and not typical of regional problems.

In view of the enormous responsibility which the States have had in establishing their new programs, regional offices have been called upon to assist the States in preparing their new State plans, making their budgets, establishing new offices, and staffing their enlarged services.

Therefore, the first and most important service to the States in the new program is assistance in providing the foundational structure for the program. The essential of the foundational structure is the State plan providing as it does for State administrative organization; expansion of the professional staff; establishment of new office, and the installation of new policies, procedures, records and record keeping.

Sections of the plan relating to eligibility for services, methods of case intake and provision of services form the beginning of a case work manual or handbook. What a State has included in these sections of the plan are a guide to the case work staff in serving the handicapped. Out of the use of this guide and experience incident to the problems in service plans, the way should be shown for revisions and improvements in case policies. Although certain basic requirements are necessary in a State plan in order that the State may establish eligibility for Federal funds, the real problem in connection with the preparation of a State plan is to see that the States make their plans distinctive. Plans should not be all of one pattern—not too legalistic, but responsive to known needs in a State and consistent with the best plans in the State for meeting other needs in the social and economic field. State

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Read before the annual meeting of the American Physiotherapy Association, New York City, May 20, 1944.

plans should be flexible, growing and changing documents as conditions in a State change, new problems are discovered, and improved methods of services are found.

Certain concepts of the rehabilitation program must be a part of all State plans—such as the individual character of the service and the obligation to assist an individual through to placement.

But the methods and procedures for the operation of the service must be primarily State conceived and carried out as other programs are carried out. When the necessary and adequate basic structure has been made, the problem then is one of development and expansion within it rather than vital changes in the structure itself.

From the viewpoint of long range planning, however, the regional office must provide leadership in program expansion which the present generous public support for and interest in the program warrants.

More cases of handicapped persons found and more disabled effectively served will justify the predictions upon which our program was given the opportunity to expand.

Four important functions of a regional office present themselves to us at this time: The first is in the general field of coordination of services for the handicapped. The second, the application of good standards of service to the disabled under the varying State conditions. The third is encouragement to the States in undertaking special projects of an experimental, research, or demonstration character. And the fourth, the creation of an objective measure which can be used to evaluate State services as to their organizational plan, the number of persons rehabilitated, and the quality and effectiveness of the service in terms of its stability and permanence.

The need for coordinating all services planned for the individual is inherent in the rehabilitation process. It represents a method of meeting the needs of individuals. Those needs are based upon a physical or mental impairment which result in a vocational handicap or difficulty in securing employment. The services must be of the kind which the individual feels will give him an opportunity to earn his living and support his dependents.

His employment difficulty is not confined to his loss or lack of employment or even his difficulty with respect to skill. His problem relates to family and community situations. The problem may be related to the need of public assistance. He may be a 4-F and, therefore, his draft board would be involved and interested. If he is a discharged veteran, his problem is one known to the Veterans Administration, the Red Cross, or a Government hospital. If the difficulty in which an individual finds himself involves other problems and agencies, then the solution of his problem must be a cooperative program involving the services of other agencies.

To provide for adequate services, the problem becomes one of first integrating services within the rehabilitation office itself, and then coordinating services among other agencies. Therefore, on the administrative level, the arrangements for providing good working relationships must be the result of an understanding and appreciation of agency responsibilities and the advantages of joint endeavor.

Methods and procedures in connection with the furnishing of services must be a continuing restatement and revision of policies. Increasingly, the Federal office will be called upon to provide standards for rendering rehabilitation services. These will be important especially in the physical restoration services. Initially, these standards will represent established practices in the States. As experience is gained, improved methods found, standards will be raised, improved and changed. Standards should be interpreted by the regional office and adapted in the States within the region on the basis of the current possibilities in the States.

In the field of program planning and to improve methods and technics, certain research and experimentation should be encouraged. New fields, such as the rehabilitation of persons with mental disabilities, and the advantages in surgical and therapeutic treatment of certain types of disabilities, should be encouraged. Projects for experimentation purposes to be useful must include sufficient basic data to justify conclusions which might have meaning not only for improvement of State programs but for the national picture as well.

Before too long those of us who are responsible for charting the way in rehabilitation or helping to make or change the pattern of our service shall need an objective measure for us by the States and by the Federal agency cooperating with the States. Soon we shall want to determine the degree to which the States are meeting the needs of the known disabled, the volume of cases rehabilitated and the quality of services to the handicapped in terms of the final answer with respect to the permanence and value of the services.

As is true in all service programs, the heart of the vocational rehabilitation program is in

the States where the people live who need our services and the services are given.

The State Rehabilitation Agencies, which function under the State Boards of Vocational Education, must now provide for new groups of the disabled on new terms. Fortunately, the amendments to our legislation have been so written that the program includes the mentally as well as the physically disabled. Thus, the State Agencies will be able to provide psychiatric care for mental disabilities, for persons with physical disabilities complicated by the presence of psychiatric difficulties, and for persons with mental retardation. Rehabilitation is available to blind persons for the first time, and the States must learn to prepare and place the visually handicapped in employment where individual interests and talents lie and where their disabilities will not be aggravated.

The State agencies have had limited experience with the provision of medical and surgical care in the reconstruction of disabled persons—since the program was restricted to vocational counseling, training, and furnishing prosthetic appliances as the only services for which Federal aid was available prior to the recent expansion.

The establishment of physical restoration units in the State Agencies, therefore, becomes a task of major importance upon which attention is centered at this time. This work is progressing through the use of recommendations and requirements, set up by the medical section in our Federal Office, as the framework for the establishment of standards in each State which will conform to the high professional standards of State and National medical associations and hospital associations. In this connection, the States are looking to the medical and allied professions for advice through the formation of State Professional Advisory Committees and through appropriate medical consultation in their day-to-day operations. The same is true in staffing physical restoration units, with personnel being employed upon the qualifications recognized by the appropriate professional group.

The changes in our program also require changes in technics. Therefore, additional training for State personnel is an urgent need in program operations. To help the States meet this need, intensive-in-service training courses are being conducted in our Federal office. These courses are designed to aid State staff members to integrate medical and vocational services step by step from the joint diagnosis through training to placement in employment. Counsel is also being given in program administration, with special courses in special fields. An example of the latter is the training course for State Industrial Placement Specialists for the Blind beginning next week in Baltimore where the class room will be taken right out to industrial plants through the cooperation of twenty-one industrialists of that city. This is the first training course of its kind in the history of the world. It will be attended by trainees who are totally blind—each of whom will learn to perform between 100 and 125 production processes on instructions given by the plant foremen. The selection of these processes was made by one of our staff members—who is without sight—by analyzing and demonstrating the processes in the plants. At the conclusion of the six weeks course, the last week of which will be given in our Washington office, the trainees will assume positions as State Industrial Placement Specialists. Their duties will be to select blind persons for training within the States, select the processes for training, and make placements.

Much further training of personnel in the rehabilitation of the blind into commercial, professional and agricultural occupations will, of course, be necessary.

These are but high-lights of our plans which are geared to give our State agencies every possible assistance to do a sound and effective rehabilitation job.

CHANGE OF ADDRESS

All changes of address must be sent directly to the office of THE PHYSIOTHERAPY REVIEW, 720 North Michigan Avenue, Chicago 11, Illinois, by the 20th of the month prior to the publication date, if the next issue is to be received. Both the old and new address must be given.

Hydrotherapy

(Summary of Pool Questionnaire Compiled by the Detroit Orthopaedic Clinic)

While water is probably one of the oldest forms of treatment of diseases known to man, its use undoubtedly predating the recorded history of almost every race on every continent, it appears only recently that it has been used extensively in the care of orthopedic conditions. Hippocrates "Father of Medicine" employed water with friction for joint diseases about 460 B. C., but very little other reference to such use of hydrotherapy can be found, and it was left to the science of the 20th century to develop its full benefits for the crippled.

In March 1943, the Detroit Orthopaedic Clinic made a survey of institutions using hydrotherapy in their treatment of orthopedic cases of children and young adults. This was undertaken to ascertain how extensively these pools and tanks are used, and how beneficial the hospitals consider the results. The response was most gratifying. So much interest was expressed by many of the staffs to learn the summary of our findings that it seemed possible others besides those who so graciously answered our questionnaire might be interested in the problem; therefore, this short account seemed in order.

From a list of over 600 hospitals and convalescent homes working with orthopedic conditions in young people—252 were selected. These are located in 45 states and in Hawaii. They cover a wide range—from large general hospitals in the great cities to small hospitals in small communities, orthopedic hospitals, hospital schools run as units of large institutions and small hospital schools drawing on several hospitals for their patients. This in itself presents a wide background for type of care required and perhaps of standards also.

182 replies were received, slightly less than two-thirds, which seemed a satisfactory response in these war-busy days.

79 reported a decrease in the use of hydrotherapy;
27 attributing decline to Kenny method, but
15 of these prefer table work anyway.
21 stated table work preferred (this in addition to the above 15 affected by Kenny table method, a total of 38 preferring table work to pool).
13 said loss of staff was cause of decline.
10 gave no reason.
7 reported fewer patients to receive hydrotherapy.
1 said lack of fuel oil was the reason.
33 reported increase in hydrotherapy.
32 reported no change in hydrotherapy.
21 reported no pool or tank.
17 reported hospital, orthopedic department or pool closed.

182 Total Replies

Of the 144 institutions using hydrotherapy in March 1943,

63 stated table work is NOT preferred.
16 had no preference (given cases suitable for the pool).
45 prefer table work.
18 did not answer this question.
2 use Kenny method exclusively.
(No report on other cases.)

These replies were signed in almost equal thirds by physicians, superintendents and physical therapists — and came from 71 general hospitals, 6 orthopedic hospitals, 20 general hospitals for children, 29 children's orthopedic hospitals and 18 hospital schools or convalescent homes.

Greatest emphasis was placed on pool treatment for arthritis — 105 checking this diagnosis, and many writing additional statements on its benefits. Poliomyelitis was the runner-up, with 98 using it. Many spoke of the decline of this disease, as well as the extent to which the Kenny method was affecting its treatment. Several institutions indicated that pool work supplemented the Kenny method, and many said that after the early stages hydrotherapy proved more helpful.

On our questionnaire, we listed 14 types of cases which our records show have been treated at the Detroit Orthopaedic Pool in the last five years, and interestingly enough every one was checked as having been treated by at least 7 institutions. While several reported the use of

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whirlpools, we had made no particular note of this type of therapy (although we have one that is used extensively), so these figures are probably incomplete.

The answers are:

Arthritis	105
with 2 using whirlpool	
Calcinosis	7
Cerebral Palsy	63
Congenital Dislocated Hip	68
Equinus Deformity	27
with 3 using whirlpool	
Flaccid Paralysis	63
Fractured Spine	43
Legg's Disease	29
Osteomyelitis	32
with 3 using whirlpool	
Pes Planus	10
with 1 using whirlpool	
Poliomyelitis	100
Pronated Feet	21
with 5 using whirlpool	
Spina Bifida	17
Scoliosis	27
with 4 using whirlpool	
Synovitis	33
with 1 using whirlpool	
Transverse Myelitis	29
T. B. Hip	21

Many hospitals took the trouble to enlarge on the questionnaire; ten hospitals stated emphatically that they would not give up their pools. One said that while they have no poliomyelitis cases at present, these have been greatly benefited by pool work in the past. Three reported that while they use pool treatment they see no results from it. One uses the pool for the heat value only, and never gives exercises in it. Another treats burn cases in the pool but never orthopedic cases. One hospital employs pool for arthritis only, and then only for its psychological effect. One institution is enlarging its hydrotherapy department because of the demands for treatment.

Dr. Earl C. Elkins, Mayo Clinic, says, "We are somewhat of the opinion that pool therapy and hydrotherapy, in general, should be on the increase rather than decrease. . . . We are, however, somewhat of the opinion that hydrotherapy, particularly pool therapy, will continue to be of some value in treatment of poliomyelitis in spite of the Kenny method of reeducation." One hospital, while preferring dry treatment because of the danger of chilling, still considers the pool to be of advantage, both in the elimination of weight and in psychological effect, since the change of environment and the seeming "sports" activities is an encouragement to greater effort. A hospital school in the East expressed disappointment over the small use made of its pool due to division of medical opinion regarding its benefits, with the results that the therapists take every opportunity to minimize treatments.

One hospital advocates the pool for walking and sitting only, never for muscle reeducation.

Another institution considers the pool a great deal of trouble.

Dr. Winthrop Phelps, authority on cerebral palsy says, "I have not found that the pool is of any value in cerebral palsy. Localized applications of heat to various areas of the body is helpful in certain cases, but in pool work we have not had good results. This is partly due to the fact that a good deal of training is in relationship to the weight of the body in walking under ordinary circumstances. In the water this weight is eliminated and the muscles used in teaching a child to walk in the water are totally different from those on land. . . . The value of the pool in infantile paralysis and other such conditions is in giving special exercise to individual muscle groups and is of great value in this sort of work."

Dr. Charles LeRoy Lowman, Orthopaedic Hospital, Los Angeles, wrote: "In general physical therapy I would retain the pool if I had to give up all the rest. The chief reasons that pool work has not succeeded more is that (1) lack of knowledge and indications for its use on the part of physicians. (2) Lack of properly trained technicians (doing exercises in water isn't necessarily proper hydrogymnastics). (3) Too much thought about pools in terms of paralysis—whereas as pointed out in 'Underwater Gymnastics' there is an explanation of a large variety of conditions suitably treated in water."

It seemed to the Detroit Orthopaedic Board of Trustees that here was expressed the summary of our replies. For it appears obvious that many hospitals lack highly trained technicians and for that reason only the additional labor involved is evident and the results do not justify the extra trouble; also many of the orthopedic physicians evidently still confine its use to paralysis cases and overlook many other types which might benefit from it. This was also expressed by another physician who put it "a pool is like any medical instrument to be used intelligently or not."

We took the opportunity in submitting this questionnaire to inquire whether there has been a drop in acute orthopedic conditions throughout the country, and also asked how much use was being made of the Kenny method.

Only 14 hospitals reported that they did not use the Kenny method, although a good many

did not feel it was of much value after the acute stage, and therefore would have little effect on hydrotherapy. Three institutions reported they combine Kenny method with pool work; another feels a pool is much better than the Kenny method; 52 hospitals definitely reported use of the Kenny method had not reduced use of pool, but 65 stated there was a marked decline in hydrotherapy since its introduction. One hospital said they employ it only because of "the public demand for it."

Only 27 of the 144 institutions reported on their case loads, though many mentioned a drop in poliomyelitis cases. Eighteen had a drop in all orthopedic cases and nine reported an increase, one attributing it to the growth in the city's population and two to studies in cerebral palsy.

The generous response to our questionnaire with its wealth of information was very satisfactory. The general trends seem to bear out the experiences this institution is having, i. e., a downward curve in acute cases, particularly poliomyelitis. This is of course gratifying for it shows the results of the past 20 years' intensive care given to orthopedic cases in infancy and early childhood. The decrease in the scourge of infantile paralysis is also welcome, and here it is of interest that only in Hawaii was any increase of this disease noted. The decline of cases requiring pool care, coupled with our own study of cerebral palsy, for which the Detroit Orthopaedic Clinic's consultant, Dr. Winthrop Phelps, does not recommend pool treatment, has made this Board of Trustees question the wisdom of continuing to maintain so elaborate a service. But from the evidence received there is no doubt as to the value of hydrotherapy—it is indicated, however, that its advantages are not always utilized to the fullest extent. The additional work necessary in preparing and caring for the patient after treatment makes it rather unpopular generally, while lack of properly trained hydrotherapists is a great handicap. In spite of these deterrents it would seem certain that a pool or tank for the institution fortunate enough to possess one is to be highly prized and greater effort should be made to enlarge its use.

My Operation

They say the biggest bore in all creation
Is the one who talks about his operation.
But if you will lend me your attention,
I'll prove that I'm the one exception.
First, let's go back seven years before
When I was a towheaded boy of four.
'Twas on a lovely summer day.
In fact, while I was hard at play
I found myself laid low
By that arch demon—"Polio".
The years that were to follow
Were more than hard to swallow.
I'd rather mention them no more
And just bring my case to 1944;
When on that epic clinic day
I met bone-surgeon, Doctor K.
He yanked my leg; he wrung my knee;
Was it two falls out of three?
Next he looked me up and down
And on his face I saw a frown.
"Son, your legs aren't so hot I see,
How about a date with us in surgery?"
My lip was firm; my chin was high
As I looked the surgeon in the eye.
"Okay, Doc., I'll take the knife;
I'm tired of sitting all my life."
At this, the doctor beamed on me—
His thumbs went up for "Vict'ry".
The hospital internes crowded near,
The senor surgeon they must hear.
"On this boy I'll do an Arthrodesis
That will inspire a famous thesis.
In fact, I'll even do an Osteotomy
That men will travel far to see."
Don't ask me what the doctor said,
His terminology spins my head.
I promised you I wouldn't bore,
So I'll only take a minute more
To say the casts are off my legs.
I'm getting Physiotherapy on these "pegs"
And with this more than boastful talk—
I know I'm going to be a mailman
So I can walk and walk and walk.

—An eleven year old boy, crippled by anterior poliomyelitis, who loves to recite poetry, is particularly fond of this poem. It was composed for him by Sidney M. Dawe, Physical Therapist at Kern General Hospital, Bakersfield, California, where the boy is a patient in the Physical Therapy Department.

Schools Approved for Training Physical Therapists

By Council on Medical Education and Hospitals of the American Medical Association

Name and Location of School	Entrance Requirements*	Emergency Course				Regular Course			
		Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma	Length in Months	Classes Start	Tuition	Certificate, Degree, Diploma
Children's Hospital, Los Angeles	a-b-c	6	FebAug	$200	Certificate	12	FebAug	$200	Diploma
College of Medical Evangelists, Los Angeles[1]	a-b-c	..	.....	....	.....	12	JanJuly	$215	Certificate
University of California Hospital, San Francisco[1]	a-b	..	.....	....	.....	12	MarOct	$150	Certificate
Stanford University, Stanford University, Calif[1]	a-b-d[2]	7	Quart.	$286	Certificate	10	Quart.	$409	Cert. or Degree
Fitzsimons General Hospital, Denver	†	6	FebAug	None	Certificate	..	.....	.....	.....
Walter Reed General Hospital, Washington, D. C.	†	6	Quart.	None	Certificate	..	.....	.....	.....
Northwestern University Medical School, Chicago	a-b-c	..	.....	....	.....	9	JulyOct	$200	Certificate
State University of Iowa Medical School, Iowa City	b-c	6	MarSept	None	Certificate	9	MarSept	None	Certificate
Bouve-Boston School of Physical Education, Boston	a-b-c[3]	6	June	$25^	Certificate	3-4 yrs.	Sept	$400 yr.	Dipl. or Degree
Harvard Medical School, Boston	a-b-c	6	MarSept	$250	Certificate	9	MarSept	$300	Certificate
Boston University Sargent College of Physical Education, Cambridge, Mass.	a-b-c	Given in conjunction with Harvard				19	Oct	$435 yr.	Cert. & Degree
University of Minnesota, Minneapolis[1]	a-b-c[4]	..	.....	....	.....	12	March	$168[5]	Certificate
Mayo Clinic, Rochester, Minn.[1]	a-b-c	6	JanJuly	None	Certificate	9	JanJuly	None	Certificate
Barnes Hospital, St. Louis	a-b-c	..	.....	....	.....	9	Oct	$200	Certificate
St. Louis University School of Nursing, St. Louis[1]	a-b-c[3]	8	JanSept	$250	Certificate	4 yrs.	JanSept	$250 yr.	Cert. & Degree
O'Reilly General Hospital, Springfield, Mo.	†	6	JanJuly	None	Certificate	..	.....	....	.....
Columbia University, New York City	a-b-c	..	.....	....	.....	10	FebSept	$390	Certificate
Hospital for Special Surgery, New York City[1]	a-b-c	6	Jan	$200	Diploma	9	Sept	$300	Diploma
New York University School of Education, New York City[1]	a-b-c	..	.....	....	.....	9	FebSept	$432	Cert. or Degree
Duke University School of Medicine, Durham, N. C[1]	a-b-c	..	.....	....	.....	12	AprOct	$200	Certificate
Cleveland Clinic Foundation Hospital, Cleveland	a-b-c	..	.....	....	.....	9	Sept	None	Certificate
D. T. Watson School of Physical Therapy, Leetsdale, Pa.[1]	a-b-c	6	AprOct	$200	Diploma	12	Oct	$200	Diploma
Graduate Hospital of the University of Pennsylvania, Philadelphia, Pa.[1]	a-b-c	..	.....	....	.....	12	JanSept	$200	Certificate

Name and Location of School	Entrance Requirements*	Emergency Course: Length in Months	Emergency Course: Classes Start	Emergency Course: Tuition	Emergency Course: Certificate, Degree Diploma	Regular Course: Length in Months	Regular Course: Classes Start	Regular Course: Tuition	Regular Course: Certificate, Degree, Diploma
Brooke General Hospital, San Antonio, Tex.	†	6	JanJuly Oct	None	Certificate	..	.....	.....	....
University of Texas School of Medicine, Galveston	a-b[6]	..	.....	....	.....	9	JanMar July	$130[5]	Certificate
Richmond Professional Institute, Richmond, Va.	a-d[6]	6	Sept	$200[5]	Certificate	9-12	Sept	$200[5]	Cert. & Degree
University of Wisconsin Medical School, Madison[1]	a-b[7]	6	AprOct	$72[5]	Certificate	12	AprOct	$96[5]	Certificate

* Courses are so arranged that any of the entrance requirements will qualify students for training. a = Graduation from accredited school of nursing; b = Graduation from accredited school of physical education; c = Two years of college with science courses; d = Three years of college with science courses.

† For complete information regarding entrance to Army training schools write to Major Emma E. Vogel, Director of Physical Therapy Aides, Office of the Surgeon General, War Department, Washington, D. C.

1. Male students are admitted.
2. High school graduates accepted for a four-year course leading to A.B. degree; students admitted quarterly and tuition is $143 per quarter.
3. High school graduates admitted to regular course.
4. Medical technology graduates with B.S. degree also admitted.
5. Nonresidents charged additional fee.
6. Those with degree from any accredited college also accepted.
7. Students with two years of college admitted to emergency course only.

The Nurse's Part in Rehabilitation

Many patients being returned from campaign areas will be discharged from the Army with one or more of their extremities missing. Many will be deformed or otherwise disfigured. As all nurses know, the period of adjustment following actual convalescence is the most trying of all, especially the first meeting with parents and loved ones.

Major Walter E. Barton, Director of the Reconstruction Program of The Surgeon General's Office, has listed ten points to help patients deformed or crippled by war injuries to regain emotional stability and "focus attention on what is left instead of on what is lost." The complete article may be found in the February Public Health Magazine, but the ten points are listed here:

1. Preserve an attitude of normality. The disabled person should be treated as though there is nothing intrinsically different about him as a result of his handicap.

2. Be natural. A natural manner that one would bring to a normal person is all that is necessary.

3. Face the reality of the disability. Create within the patient a willingness to face the fact of his limitations.

4. Ignore the deformity. Let no horror or sorrow appear in the face or manner of the person in contact with the deformity.

5. Reassure the handicapped. Help the soldier concentrate on the determination to overcome the loss.

6. Restore his faith in his ability. The martyr's attitude may be noble, but it doesn't bring much happiness to the individual.

7. Continue social living. Encourage the patient to resume social contacts after he returns to his home.

8. Give the patient a job to do. Work is associated in our minds with health.

9. Keep a balance in life. In order to maintain mental health, some work, some play, some rest should be a part of every day.

10. Stress the importance of beauty of spirit. The handicapped person who has overcome his disability carries a great message to those who feel overburdened by life's many tribulations.

Nurses also can help in spreading this program to members of families calling to visit soldiers in the various hospitals throughout the states. It is an opportuntiy to do a much needed job here at home.

—From "The Army Nurse," April 1944.

The Physiotherapy Review

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Although physical therapy technics such as light, heat, massage and exercise have been utilized for centuries, physical therapy as a profession has developed in this country largely in the past twenty-five years.

Some of the influences which have contributed to the recent rapid expansion of physical therapy services are: recognition that physical therapy is essential in the treatment of patients with war and industrial injuries, increased emphasis on the role of physical therapy in the treatment of acute as well as convalescent poliomyelitis, and the growing use of physical therapy in state and local agencies providing care for handicapped children and adults.

The American Physiotherapy Association, since its inception in 1920, has assumed leadership, in the development of the profession. During the early years efforts of necessity were directed to problems *within* the organization. Leaders in the field have recognized that the time has come for our Association to work more actively in correlating our services with those of other professional and lay groups. The formation of the National Council on Rehabilitation, stimulated by the conference of allied agencies at the Annual Conference in Lake Geneva in 1942, is an illustration of national planning. Such planning cannot be effective unless it is carried out locally. It is the responsibility of every chapter and every member to be alert to opportunities for working with other groups to accomplish a complete program of rehabilitation.

A beautifully illustrated pamphlet entitled "Improvised Equipment for the Physically Handicapped" by Margaret S. Arey, R.N., Assistant Consultant in Orthopedic Nursing, National Organization for Public Health Nursing, is now available upon request. This pamphlet was published and is being distributed by the Joint Orthopedic Nursing Advisory Service of the National Organization for Public Health Nursing and the National League of Nursing Education, 1790 Broadway, New York 19, N. Y.

Many inquiries have come in about not receiving THE PHYSIOTHERAPY REVIEW. Have you paid your 1944-45 dues? If not, your name was taken off the mailing list in accordance with the Constitution. Have you sent in your correct address? Second class mail is not forwarded.

Salary Survey Blanks

Be sure to return your salary survey blank if you have not already done so.

Dr. Michael Hoke

Dr. Michael Hoke, former chief surgeon at the Warm Springs, Ga., infantile paralysis foundation, died September 24, 1944, at the age of 70. He retired from practice in 1937.

Dr. Hoke assumed the Warm Springs post in 1931, and resigned in 1936 to resume private practice. He was a former president of the American Orthopedic Association.

Perhaps the outstanding work of Doctor Hoke during his professional career was the relief he afforded to thousands of crippled children. He was one of the leaders in the origin and establishment of the Shriners' hospitals and for years was chairman of the advisory board of orthopedic surgeons of these institutions.

Eleanor Brainard

The Ohio Chapter of the American Physiotherapy Association recently sustained a great loss in the sudden death of Eleanor Brainard. Miss Brainard had been associated with Sunbeam School for Crippled Children for many years, and had served as Director of the Physical Therapy Department since 1939. She was beloved by all with whom she worked and was the idol of the children in the school.

Poliomyelitis Epidemic

The 1944 epidemic of infantile paralysis has officially become the second worst in the recorded history of the disease in the United States, it was announced recently by Basil O'Connor, president of The National Foundation for Infantile Paralysis.

At the same time, Mr. O'Connor stressed the need for more skilled poliomyelitis fighters, especially physical therapists, and urged that men and women who have the proper qualifications make applications for scholarships offered by the National Foundation and its Chapters.

In the first 41 weeks of 1944, or up until October 14, there were 16,133 cases of poliomyelitis, according to the latest report from the U. S. Public Health Service. This is 353 cases more than were reported in the country for 1931 which previously had been the second worst year for the disease. The all-time record was in 1916 when there were 27,621 cases.

"Although the peak of the outbreak was passed more than a month ago, the epidemic itself has not yet ended," warned Mr. O'Connor. He pointed out that there were 710 new cases reported for the week of October 7-14, or nearly half the weekly total at the peak of epidemic, the week ending September 2 when 1,683 cases were reported.

This great outbreak has tested not only the resources of the National Foundation and its Chapters, but also those of the nation. The National Foundation's greatest problems were in obtaining sufficient physicians, physical therapists and professional personnel to cope with nearly simultaneous outbreaks in widely separated sections of the south, the east and the middle west. Seven skilled poliomyelitis physicians, 65 physical therapists and nearly 10 tons of wool for use in hot pack treatments were rushed to stricken areas by the National Foundation. All 26 respirators owned by the National Foundation are still in use in epidemic areas. At the request of the National Foundation, the American Red Cross recruited more than 700 nurses from all parts of the country to staff regular and emergency hospitals.

The seven states most severely menaced were New York, North Carolina, Pennsylvania, New Jersey, Virginia, Ohio and Kentucky, but emergency aid in the form of money, professional personnel and supplies has been sent this year by the National Foundation to 21 states and the District of Columbia.

Although the National Foundation and its Chapters have trained many physical therapists in the modern principles of treating infantile paralysis, many more technicians are still needed for this present fight. The greatest handicap in rendering effective aid in any epidemic of infantile paralysis has been the lack of physical therapists. The National Foundation for Infantile Paralysis through its scholarships in accredited schools of physical therapy has been and still is seeking to enlarge this first line of defense.

These scholarships sponsored by the National Foundation are available to graduate nurses, graduates in physical education or those with a minimum of two years undergraduate college work with science courses. Such applications may be made through the National Foundation or to The American Physiotherapy Association, 1790 Broadway, New York 19, N. Y.

The field of physical medicine is expanding rapidly and this is an opportunity for men and women to enter an interesting, lucrative profession with a chance of performing a humane service.

Miss Catherine Worthingham, former president of The American Physiotherapy Association, has joined the Medical Department of the National Foundation for Infantile Paralysis as Director of Technical Education in which capacity she will assist in developing on a still wider scale the National Foundation's programs of undergraduate training and graduate education in physical therapy.

Miss Worthingham has been granted a leave of absence from Stanford University where for the past seven years she has been Director of Physical Therapy in the School of Health (Women).

Her new assignment will embrace a thorough evaluation of the progress being made in the field of physical medicine through the application of modern physical and occupational therapy technics employed in the treatment of infantile paralysis patients. She will act in a liaison capacity between the National Foundation and the many treatment centers throughout the United States where training courses in this branch of medicine are being sponsored by the organization.

Massachusetts Chapter

Miss Jessie Stevenson was a guest of the Massachusetts Chapter at their meeting on October 10, 1944.

Physical Therapists Serve in Infantile Paralysis Epidemic Areas

The exceptionally large number of anterior poliomyelitis cases in 1944, approximately 14,500 cases to the middle of October, has given rise to many problems in emergency care. It has been extremely difficult to obtain an adequate number of physicians, nurses and physical therapists. The National Foundation for Infantile Paralysis had a small list of physical therapists who had expressed willingness to assist in those areas

Fig. 1. From this small camp building grew the Emergency Polio Hospital at Hickory, North Carolina. Equipped and in operation within three days, through funds provided by The National Foundation for Infantile Paralysis, this impromptu institution helped combat the epidemic tide that swept through the state.

where an increased incidence of cases might occur. This list was soon exhausted both because of the unprecedented need and the fact that the hospitals or agencies by whom these physical therapists were employed found it impossible or inpracticable in some cases to release them at the time the need occurred.

Two telegraphic appeals were made to the American Physiotherapy Association membership with the cooperation of Miss Jessie Stevenson. Contacts were made with the State Departments of Health, particularly in those areas where there had been a large number of cases last year. The schools of physical therapy were asked for names of graduates who might be willing to assist. One school, Boston University Sargent College of Physical Education, sent seven senior students to work under the supervision of graduate physical therapists.

As a result of these contacts, thirty members of the American Physiotherapy Association had responded up to October 15th. Undoubtedly direct contacts with other physical therapists were made by the medical authorities in the areas of the epidemic so that the data here presented is not complete. It is of interest to note, however, that California loaned nine physical therapists, Georgia six and New York five, while Colorado, Indiana, Massachusetts, Michigan, New Jersey, Ohio and Washington loaned from one to three physical therapists each.

Charlotte Anderson was assigned to Indiana. Jane Vandenbosch Corry and Eloise Draper went to Kentucky, along with Erna Freeman who also assisted in New York. Goldie Greer assisted in Mississippi. Esther Hutchinson was sent to New Jersey. Enid Bailey, Caroline Earl, Alta Ebeltoft, Betty Hyma and Kamlish Kumari were assigned to New York. Ethel Brown, Nina Haugen, Patsy

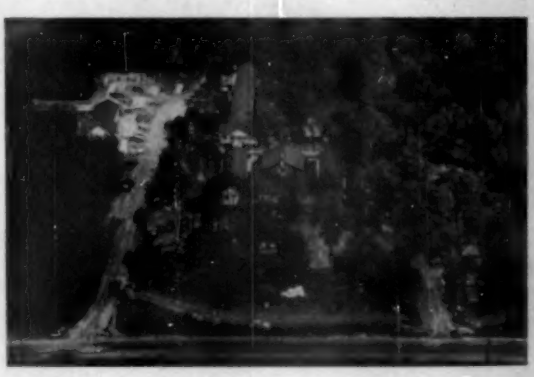

Fig. 2. Aerial view of the Emergency Polio Hospital on the outskirts of Hickory, North Carolina. In the foreground, almost hidden by the trees, can be seen the four hospital tents used as emergency wards. Center building is the original camp building from which the hospital was evolved. In the background, under construction, is the three-ward permanent building which completed the hospital facilities.

Housing 217 poliomyelitis victims as of September first, this epidemic emergency institution is supported by The National Foundation for Infantile Paralysis, Inc.

Lee Hemminger, Evelyn Hillman, Marianne Johnson, Marion Pratt, Trude Seligman and Gus Valdemar assisted in North Carolina. Most of the latter group were assigned to the Emergency Hospital at Hickory. Ruth Babb and Ruby Bergstrom went to Oregon. Gerda Bergstrom, Dora Lou LaPrade, and Violet Pogorzelski served in

Pennsylvania. Mabel Fitzhugh and Dorothy Leland were sent to Virginia. Caroline Bowers and Shirley Doppee were assigned to West Virginia.

It is probable that with the extreme shortage of trained personnel there will again be a need for the loan of physical therapists next year. The National Foundation for Infantile Paralysis, 120 Broadway, New York City, would very much appreciate the names and addresses of any physical therapists who would particularly like experience in the treatment of infantile paralysis during the early stages and who can be released by their employers for periods of at least a month. It is always understood that should any increase in the number of cases take place in the home locality, the physical therapist can be recalled. The cooperation of the members of the American Physiotherapy Association in making available a list of qualified physical therapists for emergency care in any epidemic areas which may occur in 1945 will be a real service in the effort to give adequate care to victims of infantile paralysis.

Fig. 3. Hydrotherapy tanks built by local workmen enable the Hickory (N. C.) Emergency Polio Hospital to give all victims of infantile paralysis complete physical therapy treatment for reeducation of muscles.

Staffed and supported by The National Foundation for Infantile Paralysis, the emergency hospital provided the best of medical care and treatment for victims of the North Carolina epidemic.

The number of cases has been steadily increasing during this summer and fall. If any physical therapist can be spared now even for a short period, please get in touch with the National Foundation.

Fig. 4. Negro and white children alike were stricken by infantile paralysis when the epidemic swept through North Carolina. In the wards of the Emergency Polio Hospital at Hickory, the finest medical care and treatment was provided by The National Foundation for Infantile Paralysis for all poliomyelitis victims.

Army Promotions

The Surgeon General of the Army announces the following promotions of Medical Department Physical Therapists to the grade of First Lieutenant:

Castle, Helen M.—Overseas
Conkey, Jane E.—Overseas
Freidel, Ruth—Overseas
Gaskeen, Jean S.—Rhoads General Hospital, Utica, N. Y.
Jones, Alice G.—Station Hospital, Camp Edwards, Mass.
Kirkorian, Angel—Overseas
Landers, Joan N.—Overseas
Lawrence, Dorothea M.—Deshon General Hospital, Butler, Pa.
Matthews, Priscilla—Army Air Forces Training School, Sioux Falls, Iowa
Mikals, Julia—Station Hospital, March Field, Riverside, Calif.
Mooney, Gertrude X.—Overseas
Sanders, Carrie A.—Overseas
Sherman, Elinor—Overseas
Twichell, Ellen—Mason General Hospital, Brentwood, Long Island, N. Y.
Warwick, Julia E.—Overseas

The Surgeon General of the Army announces the following promotion of Medical Department Physical Therapists from the grade of First Lieutenant to the grade of Captain:

Lawrence, Mary—Office of the Surgeon General, Washington, D. C.

New Army Hospital Uniform

In these photographs Lieutenant Helen Louise Matchett, Medical Department Physical Therapist, United States Army, wears the new hospital uniform authorized for these officers. The uniform is made of a fine grade of brown and white seersucker material and with the exception of the insignia, is the same as for other female officers in the Medical Department of the Army.

Lieutenant Matchett was commissioned 10 July 1944 and is now on duty at Walter Reed General Hospital, Washington, D. C. Daughter of Brigadier General and Mrs. H. J. Matchett, 3901 Connecticut Avenue, N.W., Washington, D. C., she was the first woman to be enlisted in the Women's Army Corps for the purpose of attending a training course in physical therapy offered by the Medical Department of the Army.

Lieutenant Matchett graduated from George Washington University, Washington, D. C., in 1943 with an A.B. degree majoring in biological sciences. She completed the six months' course in physical therapy conducted by the Medical Department of the Army at the D. T. Watson School of Physical Therapy, Leetsdale, Pennsylvania, and was then assigned to Valley Forge General Hospital, Phoenixville, Pennsylvania, for a three months' period of apprenticeship.

Those who are interested in following in Lieutenant Matchett's footsteps may receive information regarding the procedure for enlisting in the Women's Army Corps for this training program from local WAC recruiting offices or from the Office of The Surgeon General, Washington, D. C.

Official U. S. Army Photos

Physical Therapists Hold Meeting in North Africa

The following letter, dated April 4, 1944, was received by Miss Worthingham from one of our members serving with the Army:

Just a note to let you know that the APA is being perpetuated in North Africa. A few weeks ago we had a meeting in the Grosvenor Arms (better known as tent #8, Nurses' Area, General Hospital). We had some of the local vintage to drink, and excellent sandwiches, coffee and cakes, supplied by the mess department. We all were in fatigues because they are warmer than class A uniforms and the Grosvenor sports no heating facilities.

A fine time was had by all, especially when we started bragging about our respective departments, and discussing problems concerning the difficulties of running physical therapy departments in tents, and under the general conditions of too many patients, limited personnel, and haphazard hot water and electricity. We all concluded that hands and heads are of most use.

The following physical therapists were present:

1st Lt. Lilyan G. Warner
2nd Lt. Doris Smith
2nd Lt. Frances E. Morgan
2nd Lt. Mabel L. Foy
2nd Lt. Elizabeth A. Hackett
2nd Lt. Barbara C. Oak
2nd Lt. Helen K. Laur
2nd Lt. Elizabeth V. Morgan
2nd Lt. Nancy G. Duncan
2nd Lt. Ruth Chatfield

and yours truly,

1st LT. KARLA STANEK

New Members

The following are newly accepted members of the American Physiotherapy Association (provisional memberships unless otherwise noted):

Anderson, Mildred Jane, Army and Navy General Hospital, Hot Springs, Ark.
Back, Helen V., Station Hospital, Scott Field, Ill.
Ball, Dorothy A., Albany Road, Old Deerfield, Mass.
Barr, Ellamae, 6222 Broadway, Chicago, Ill.
Becker, Robert D., 7423 Dorcas Street, Philadelphia, Pa. (Active)
Bernreuther, Jane C., 122 S. 14th St., Olean, N. Y.
Blown, Florence T., 514 9th St., Galveston, Texas.
Brown, Myrtle, Station Hospital, Maxwell Field, Ala.
Cannon, Erma S., 318 W. Franklin St., Richmond 20, Va.
Carroll, Matilda, Billings General Hospital, Ft. Harrison, Ind.
Coleman, Marjorie, 29 Undine Road, Brighton, Mass.
Corry, Jane Vandenbosch, 227 Howard St., Grand Haven, Mich.
Freesz, Susanne, 4 East 94th St., New York, N. Y.
Gerhart, Vivian M., P. O. Box 235, Quakertown, Pa.
Gorney, Lillian Barbara, 433 E. 113th St., Chicago 28, Ill.
Grove, Louise E., 3329 Chestnut St., Philadelphia, Pa. (Active)
Hannan, Vivian G., 2631 Colfax Ave., Minneapolis 11, Minn.
Hughes, Jeanne E., 4582½ Sunset Blvd., Los Angeles 27, Calif.
Keating, Vera A., 1200 Louden St., Philadelphia, Pa. (Active)
Kern, Henry P., 4312 Walnut St., Philadelphia 4, Pa. (Active)
Kleiman, Isabel E., 4070 N. Kenmore Ave., Chicago 13, Ill. (Active)
Klein, Betty Leslie, 65-44 Saunders St., Forest Hills, N. Y.
Loomis, Eleanor, Wynnewood Park Apts., Wynnewood, Pa. (Active)
Lostetter, Mrs. Jane Whiting, 5728 Cazaux Drive, Hollywood 28, Calif.
Martin, Judy Ball, 3645 Rutger St., St. Louis 10, Mo.
Molley, Jean Anne, 319 - 12th Ave. S. E., Minneapolis 14, Minn.
Murphy, Lt. Alma J., M-1150, Crile General Hospital, Cleveland 9, Ohio
Neely, Esther C., 5 S. LaSeuda, Three Arch Bay, S. Laguna, Calif. (Active)
Peters, Marie Anne, 65 Euclid Ave., Hastings-on-Hudson, N. Y.
Riddle, Gertrude F., 4529 Aico Ave., St. Louis, Mo. (Active)
Rogers, Sarah S., Ashford General Hospital, White Sulphur Springs, W. Va.
Schneiderjon, Lt. Ruth, Station Hospital, Camp Carson, Colo.
Seng, Edna Roberta, Glennan General Hospital, Okmulgee, Okla.
Smith, Grace Butler, 1988 Ashland Ave., St. Paul, Minn.
Weinstein, Lawrence, 2195 Walton Ave., Bronx, N. Y.

Recent graduates of Brooke General Hospital, San Antonio, Texas:

Amsden, Bessie S.
Bennett, Constance H.
Cairns, Joyce A.
Carbee, Irene
Hall, Louise P.
Miller, Jessie L.
Pagel, Eileen E.
Walt, Ethel E.
White, Dorothy I.

Recent graduates of Children's Hospital, Los Angeles, Calif.

Bates, Edith
Bates, Jacqueline
Brown, Mrs. Rosalie
Cook, Mrs. Joel Lucille
Demares, Mrs. Irene
Grisbon, Rose Marie
Jett, Ruth E.
Karis, Virginia
Maw, Thelma
Moore, Irene
Perkins, Mrs. Ruby
Wyatt, Virginia

Recent graduates of Fitzsimons General Hospital, Denver, Colo.:

Baab, Alice
Boyd, Mildred M.
Brannon, Ruby V.
Clifford, Isabelle M.
Fox, Juanita Leah
Heafield, Bertine C.
Hutton, Helen K.
Jackson, Hettie Leatta
Larkins, Betty C.
Leitner, Rebecca M.
Lower, Lella M.
MacLennan, Faith A.

McElwee, Rosemary N.
Marcowitz, Helen
Miller, Margaret F.
Mueller, Ruth A.
Phillips, Rosalyn
Spahr, Catherine E.
Troop, Leota Pauline
Tolleth, Dorothy E.
Vinyard, Agnes E.
Wesley, Wallace

Recent graduates of Harvard Medical School, Boston, Mass.:

Bickmore, Myrtle L.
Dalton, Nadylis L.
Dee, M. Barbara
LeMay, Bibian A.
Middleton, Blanche A.
Suhvich, Lucy M.
Wrisley, Florence O.

Recent graduates of WAC Detachment, Lawson General Hospital, Atlanta, Ga.:

Blum, Norma
Bomifield, Florence E.
Bower, Beulah Dorothy
Cook, Clara O.
Dunwoody, Mary L.
Hill, Ann Louise
Lacy, Linnie
Lawrence, Edith C.
Small, Jessie M.
Steirman, Carolyn T.
Turner, Evelyn M.

Recent graduates of O'Reilly General Hospital, Springfield, Mo.:

Arduser, Helen M.
Bachmann, Evelyn E.
Beery, Miriam A.
Butzer, Miriam B.
Cumbee, Ann
Dumond, Edith L.
Griffin, Dorothy M.
Gussman, Mary
Harris, Stella M.
Hoffman, Jean
Meida, Helen M.
Murdoch, Natalie A.
Rydell, Ruth H.
Scruggs, Ozella L.

Recent graduates of Stanford University, Calif.:

Alter, Betty
Atwood, Barbara Mae
Beach, Christine E.
Cadwallader, Helen M.
Chute, Charlotte L.
Clay, Thelma
Ebeltoft, Alta
Garrett, Patricia
Genge, Doris Irene
Grout, Edna A.
Irvine, Constance
Jasbery, Gloria
Kalisky, Johanna
Kell, Catherine N.
Martini, Olga E.
Murray, Ruth E.
LaPrade, D. Redmon
Pike, Margaret
Ritchie, Sibyl L.
Rossi, Josephine E.
Schneider, Martha J.
Walter, Evelyn I.
Whintrop, Miriam N.
Witter, Katharine D.
Woodburn, Julia
Woods, Jennie E.
Yoder, Margaret
Youngs, Helen

Recent graduates of WAC Detachment, Stanford University, Calif.:

Bates, Ruth
Beard, Genevieve
Breithaupt, Gladys
Christy, Marjorie
Frazer, Eleanor M.
Hastings, Anna E.
Heaps, Laura F.
Hollberg, Elsa W.
Johnson, Gertrude
Luke, Myrtle Laverne
MacFarlane, Beatrice E.
McDermott, Jean
McGee, Genevieve
Murray, Helen M.
Parks, Vella
Rowan, Allene D.
Stagni, Ethel
Tirrell, Gladys

Recent graduates of Walter Reed General Hospital, Washington, D. C.:

Adams, Carolyn
Bachman, Elizabeth
Buck, Anna M.
Fauble, Phyllis H.
Hilss, Anna E.
Johnson, Joyce M.
Mara, Evelyn M.
Martz, Sarah K.
Montgomery, Mary J.
Noll, Dorothy V.
Prage, Ethel A.
Ratcliffe, Helen
Siglin, Alice J.
Smith, Corra E.
Swanson, Junia E.
Swenningsen, Julia H.

Recent graduates of D. T. Watson School of Physical Therapy, Leetsdale, Pa.:

Biddle, Elizabeth R.
Boyne, Hazel K.
Brallier, Dorothy Jeanne
Byrd, Dora E.
Calhoun, Virginia Zoe
Cobb, Betsy E.
Cohen, Anne Marie
Courtney, Mary E.
Crewson, Laura Lewis
Danielson, Ruth E.
Forker, Janet Elizabeth
Hilliard, Fae M.
Hoke, Irene Blanche
Lewis, Katherine Bowie
Linehan, Mary Regina
Link, Helena Carolyn
Linn, Dorothea Jane
Lutz, Helen Marie
McKee, Ruth Kathryn
Matchett, Helen L.
Moran, Lucille Eleanor
Motsinger, Elizabeth
Nichols, Helen Elizabeth
Peretic, Albert Hugh
Perry, Ruby I.
Rachloff, Fanella R.
Rees, Ardele
Ripczinski, Gladys Lucille
Roberts, Ruth Evaline
Rookard, Mildred Nelson
Rowland, Grace M.
Ruthe, Mildred Alice
Speegle, Imogene
Tidwell, Dora K. Hoffman
Wintermote, Dorothy Eula
Wood, Elizabeth C.
Wood, Mary Elizabeth

The following persons were accepted through the Georgia Chapter:

Blake, Janet
Hubbard, Hazel
Hyma, Betty
Wright, Naomi

Santa Barbara District

A letter from the Santa Barbara District to Miss Jessie Stevenson, President of the American Physiotherapy Association, tells of one chapter's foresight, and should inspire other chapters to have a similar project.

"Should an emergency in this community be created by an outbreak of poliomyelitis, the Santa Barbara District of the California Chapter will be ready to assist.

"Since reports of the epidemic in the East reached us we have been studying and reviewing methods of care and muscle training together in weekly sessions."

(Signed) VIRGINIA HORSLEY, *Sec. pro tem.*

Loan Libraries

The Bureau of Information of the National Society for Crippled Children, Elyria, Ohio, is a clearing house for information on the cripple—both child and adult. Since 1921 it has collected old and new publications—books, magazine articles, newspaper clippings, speeches, reports of institutions and agencies serving the cripple, copies of legislation, and countless other items of information. The master index file contains over 35,000 reference and cross-reference cards. Services vary from answering simple questions on specific subjects to sending large collections of loan literature. Borrowers pay only the costs of shipping the loan material.

A similar service is maintained by the Bacon

Library of the American Hospital Association, 18 East Division Street, Chicago 10, Illinois. This library keeps a very complete file on the various phases of hospital administration, taking into consideration the layout of departments, the necessary equipment and other pertinent information. The procedures and technics of treatment, however, are not included in the material available from the Bacon Library. Borrowers pay only the return shipping charges.

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Intensive Arsenotherapy of Early Syphilis. ARTHUR G. SCHOCH, M.D. Texas State J. Med., Aug. 1944.

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A Rehabilitation Center for the Injured Worker. JOHN S. COULTER, M.D. Arch. P. T., Sept. 1944.

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ABSTRACTS

John S. Coulter, M.D.

The Abuse of Rest in Psychiatry

Karl Menninger, M.D., Topeka, Kansas. In THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 125:16: 1090, August 19, 1944.

What we find almost regularly in psychiatric patients is that they cannot work, they cannot play and they cannot rest.

To teach such individuals how to work and how to play is to teach them how really to rest. This is the function of occupational therapy, recreational therapy, educational therapy and psychotherapy as they are employed in the modern psychiatric hospital. They seek to make it possible for the patient to find an outlet for his instinctual urges in work and play properly guided, properly taught, properly selected for his special needs, interests and capacities, and properly graded and expanded. All this is in a contrary direction to that of the old plan of enforced rest whereby the patient through mora', physical or chemical restraint was obliged to surrender to idleness and passivity. Both types of treatment were not only ineffective; they were actually deleterious.

Conclusion

The concept of rest as a form of treatment in psychiatry arose in an era characterized by the total neglect of the consideration of psychologic factors in the study of human beings. As the mechanistic conception of personality has given way to the dynamic organismic conception, the fallacy of curing psychologic symptoms by merely decreasing muscular activity has become apparent. In the sense of physical inactivity, rest has ceased to be of any importance in psychiatric phenomena. Indeed, the tendency is in precisely the other direction; namely, to utilize rather than to blockade further the available energy of the neurotic or psychotic patient. Such a point of view extends beyond a treatment of conditions formerly described as neuroses and psychoses, however; in arterial hypertension, for example, where there is a vascular response to the anxiety associated with emotional conflict, the former prescription of exercise and work seems to have been a step in precisely the wrong direction. I am confident that the death of some hypertensive patients has been hastened by physicians who removed from them the only available or acceptable form of aggression to which they had had access.

New Horizons in Physical Medicine

David Grant, Major General, U.S.A. In ARCH. P. T., 25:9:525, September 1944.

For the past twenty-two months the Air Forces has conducted a Convalescent Training Program, designed to engage the sick soldier in a program of activity in which physical medicine in all of its aspects has played a most important part.

I believe it appropriate indeed at this time to discuss the Air Forces Convalescent Training Program and the part which physical therapy and physical medicine have played. As soon as our patient is over his acute stage of illness, the rehabilitation or reconditioning process is begun. In most instances this might mean forty-eight hours after a patient is postoperative. More than 30,000,000 man hours of experience has given us many

guide-posts and pointed the way to ever-increasing technics and improvements.

The Air Forces program has four facets on which the approach to the soldier patient is based. These are (1) physical, (2) psychologic, (3) vocational and (4) resocialization. In all of these phases the staff of the hospital operates as a team, with the Flight Surgeon acting as captain. The captain of this team like the captain of any good football team can turn out a winning combination only in direct proportion to the cooperation and skill employed by the other members.

Kenny Treatment in Poliomyelitis: An Evaluation

J. Wayne McFarland, M.D., Los Angeles. In CALIFORNIA AND WESTERN MEDICINE, 61:2:77, August 1944.

This evaluation of the Kenny treatment is based on a study of 280 cases of poliomyelitis which occurred during the years 1942 and 1943. We are well aware that this report cannot be a final estimate of what the Kenny treatment has or has not done, because not a sufficient period of time has elapsed. However, we believe there is enough evidence from the progress made thus far to give us a fair basis from which to draw our conclusions.

Summary

A study of the Kenny treatment in 280 cases of poliomyelitis occurring during the years 1942 and 1943 has been analyzed as to functional results as follows:

1. Eighty-four per cent ended with excellent or normal function requiring no support of any type.

2. Eight per cent ended with good function, that is, they required no braces, but used crutches or canes.

3. Five per cent ended with fair function, and three per cent with zero or poor function. These two groups required supports or braces, or function was impaired beyond hope of recovery.

4. Muscle spasm is more often the cause of poor function than is muscle paralysis.

5. Inadequate treatment of abortive poliomyelitis often may result in scoliosis.

Some Physiologic Effects of Passive and Active Exercise: The Cardiovascular Response to Graded Exercises

E. Corinne Fries, M.S., Madison, Wisconsin. In ARCH. P. T., 25:9:545, September 1944.

The literature regarding the physiologic effects of passive exercise is not extensive. It is generally believed that only active contractions of muscle against a load will produce an increase in strength. Passive exercise is employed clinically, not to develop muscle power, but to prevent fibrosis and to restore normal motion in a stiffened joint. The motion is thought to relieve stasis and edema by assisting venous return and increasing the lymph flow from the part. There is almost no experimental evidence as to whether or not passive movements can produce any change within muscle or as to whether they do have any demonstrable influence on the circulation.

Summary

The cardiovascular response of two normal young adult women to a graded series of exercises on an electrically driven stationary bicycle ergometer has been reported. The machine has the unique feature of exercising the upper and lower extremities simultaneously along with the large supporting trunk muscles. The exercises may vary from ones that are completely passive to those of hard muscular work. The results are compared with homologous data showing the increase in metabolic cost with exercise.

The data indicate that:

1. The circulatory adjustment of the individual to a given exercise on the motor-driven bicycle ergometer offers an objective method of defining the severity of the work done.

2. Exercises can be performed on this machine which range from a mild passive type, involving no circulatory stress, to those of heavy muscular work, causing vascular adjustments paralleling those of anaerobic activity.

3. The rapid leg motion, as incited passively by the machine, exerts little or no effect on the general circulatory mechanism.

A Rehabilitation Center for the Injured Worker

John S. Coulter, M.D., Chicago, Illinois. In ARCH. P. T., 25:9:539, September 1944.

Rehabilitation is the planned attempt through the use of all recognized measures under skilled direction to restore those persons who because of disabilities do not assume as quickly as possible that place in the productive stream of society which they are potentially capable of assuming.

The first step in rehabilitation is to obtain the cooperation of the patient and awaken his will to recover. After this cooperation has been obtained, rehabilitation will be the result of coordinated activity by a team of experts in medicine, surgery, orthopedic surgery, psychiatry and physical medicine. The part to be played by physical medicine in such activity has grown tremendously in recent years.

Summary

Rehabilitation of injured patients requires prompt use of physical medicine, that is, coordinated physical, occupational and recreational therapy. This means establishment of rehabilitation departments in our American hospitals. A model for such departments is the rehabilitation clinic established in Boston by the Liberty Mutual Insurance Company, which handles a large volume of workmen's compensation.

Physical therapy—the use of heat, massage and exercise—should begin while the patient is still in bed.

Occupational therapy should be prescribed to suit the needs of the individual patient by a physician who has a thorough knowledge of physiology, pathology and bodily mechanics. It should be aimed not merely at improving the mental condition but at restoring the muscles which the patient uses in his regular occupation.

The chief object of recreational therapy is the social adjustment of the patient. This often can be accomplished by helping him to excel at a given form of recreation.

In the case of psychologically protracted convalescence, Solomon's method of psychiatric guidance in combination with physical and occupational therapy is advisable.

In planning the treatment of an injured worker in the curative workshop, the physician should keep in mind Griffiths' theory of the conditioned reflexes of industry and should direct the occupational therapy of the patient toward restoring that patient's particular work-conditioned reflex.

In the restoration of limb function after injury, active resistive exercises are more valuable than generalized, free-swinging exercises because they are localized and controlled.

Evaluation of Fitness

Henry Longstreet Taylor and Josef Brozek, the Laboratory of Physiological Hygiene, University of Minnesota, Minneapolis. In FEDERATION PROCEEDINGS, 3:3:220, September 1944.

One of the goals of rehabilitation therapy is to return the patient to his work in good condition. Measures instituted during convalescence to more rapidly achieve this goal must be assessed by objective criteria. The physiologist and the psychologist can provide tools which will give some objective evidence of the returning fitness of the convalescent.

The term "fitness" is generally used to cover two distinct fields. One deals with estimation of occupational work capacity, the other has for its goal the assessment of the ability to withstand physical and biological stresses. These fields overlap and are frequently confused. Tests of cardiovascular, respiratory and metabolic processes, motor performance, sensory and intellective functions, and emotional state will be reviewed to give a rounded picture of fitness of a general character which is not closely related to a specific occupation. Particular emphasis has been laid on the limitations of these procedures and on valid experimental design.

All fitness tests are extremely nonspecific and should always be interpreted in the light of clinical findings. No attempt has been made to review the problem with reference to particular disease entities; cardiovascular and respiratory tests have been evaluated from the clinical point of view by Simonson and Enzer.

It may be expected that significant improvement in the methods for evaluation of motor fitness will come out of the intensive rehabilitation program which is being developed by the armed forces. For example, at the Fitzsimmons Hospital (Denver) observations are made of the physical performance of convalescents during their activity program. In addition, repeated measurements of physical and motor fitness are made and postural examinations are also carried out in order to obtain a comprehensive and meaningful picture of the progress of convalescence. Unfortunately the full details are not yet available.

High Frequency Electric Current in the Treatment of Alcoholic Hallucinosis

K. Y. Gruenberg. In AMER. REVIEW OF SOVIET MEDICINE, 1:6:548, August 1944.

The treatment of alcoholic hallucinosis by high frequency electric current was undertaken by way of experiment, although it was based on observations of a psychotic syndrome of other etiology. I had frequently found, especially among schizophrenic patients with auditory hallucinations, that after an exposure to the high frequency current or, more often, towards the end of the treatment, the voices according to the patients themselves became for a time less loud, less clear and more distant. These observations suggested the use of the same therapy in cases in which the predominant syndrome is of a delusional nature, as in alcoholic hallucinosis.

On November 3 the high frequency treatments were begun, wave length 7.5 meters, for 15 minutes. About 10 minutes after exposure patient said that he felt the voices striking the plates and then disappear. After the treatment the patient complained that his head felt heavy, but said this would pass after a few minutes. On November 5, patient said the voices were considerably lower, were heard less often, and that he felt better. The voices stopped completely after five treatments. On November 14, the patient was discharged and he returned to work.

As to the therapeutic action of high frequency electric current on alcoholic hallucinosis—the effect is apparent after the first treatment—it must be considered on the one hand, from the standpoint of the definite pathogenic mechanisms which have a definite function in the origin of hallucinosis and, on the other hand, from the standpoint of the effect of high frequency electric current on these mechanisms. It is pertinent to discuss briefly the effect of high frequency electric current on the nervous system, particularly on the brain and its blood vessels. The latter do not react differently to short waves from other parts of the nervous system.

The Successful Treatment of Diabetes

Col. Alexander Marble, M.C., U. S. A. Harmon General Hospital, Longview, Texas. In TEXAS STATE JOURNAL OF MEDICINE, 40:4:233, August 1944.

The constant improvement in the treatment of diabetes is attested by the increasing length of life, the earlier detection and lessening of specific complications and the growing capacity of diabetic individuals to engage in useful occupations. These are matters of great importance because at the present time well-considered estimates place the number of diabetics in the United States at about 800,000. This means that there is 1 diabetic in each group of 165 or 170 members of the population at large with a much greater incidence in certain selected groups weighted as to one or more of the following: heredity (diabetes in family), age (over 40), sex (female), body build (obese), residence (urban) and racial stock (Jewish).

Exercise

No account of the successful treatment of diabetes would be complete without a word as to the value of physical activity. In patients in whom, by nature or by injection, a satisfactory amount of insulin is present in the body, exercise augments the blood-sugar-lowering effect of the insulin in addition to producing the nonspecific beneficial effects such as the development of muscles. In addition to promoting well-being, moderate exercise regularly taken usually permits or even necessitates a lowering of the total amount of insulin given daily.

Some Harmful Effects of Recumbency in the Treatment of Heart Disease

Samuel A. Levine, M.D., Boston. In J.A.M.A., 126:2:84, September 9, 1944.

Conclusions

Rest in bed, which has been the backbone of our treatment of heart failure, needs reconsideration in the light of some possible harmful effects.

There is both clinical and laboratory evidence to show that recumbency may be very harmful for certain patients with heart failure. The heart may be made to work more rather than less, and pulmonary congestion may be made worse rather than better at certain stages of heart failure by placing the patient in bed. Making the bed slant downward by placing 9 inch blocks of wood under the head posts is a simple method of minimizing this undesirable effect. At times it is wise to treat patients with heart disease in a chair rather than in bed.

Cardiac as well as noncardiac patients who are confined to bed for any appreciable length of time should be instructed to exercise their legs frequently or to have massage of the legs to prevent venous thrombosis of the legs and pulmonary emboli.

Progress in Pediatrics: Poliomyelitis (Results of Treatment During the Acute Stages of the Disease)

John A. Toomey, M.D., and Paul M. Kohn, M.D., Cleveland. In AMER. J. DISEASES OF CHILDREN, 67:5:399, May 1944.

When one of us (Toomey) began treating patients with poliomyelitis over twenty-two years ago, he was stimulated principally by the teachings of Feiss, though he could not accept all of Feiss' dictums, especially the one that all patients should be made to walk early. He felt that they should not walk unless they walked correctly, that is, synchronously and against gravity, without any limp and without any added jerky movement that would denote substitution of muscles. It was also his belief that patients should be kept in bed in a hospital, under the absolute control of some one who understood the treatment of infantile paralysis in its early stage. This is the time when these patients are problems for persons trained in physical therapy and interested in the early reeducation of muscles, whether they happen to be pediatricians, orthopedic surgeons or physical therapists. Ordinarily, a patient should not have orthopedic devices until and unless he has weak muscles and must get up and move against gravity. If he has weakness of muscles but enough muscular power to give him synchronous movement of a normal character, continued physical therapy is all that is necessary. If, however, the patient does not cooperate and there is a tendency to substitute and to limp, there is only one thing to do, and that is to have the orthopedic surgeon take charge and make some arrangements to protect the weakened muscle.

It is our prediction that the percentage of patients who will be referred to orthopedic surgeons in the future will be just about the same as in the past, but the patients will be in a better condition to profit by orthopedic aid.

Our results are as good as any previously reported. Hence, by inference, we could conclude that splints and fixed casts are not necessary during the acute stage of poliomyelitis and that early active treatment does not harm the patient.

It is felt that the secret of successful treatment is to keep the involved muscles in good condition by maintaining the vascular supply, with the aid of physical therapy, and to follow a program of reeducation of the muscles until such time as they can be used normally.

The Histopathology of Progressive Muscular Dystrophy as Revealed by Ultraviolet Photomicrography

Charles L. Hoagland, M.D., Robert E. Shank, M.D., Lieutenant, Medical Corps, United States Naval Reserve and George I. Lavin, Ph.D. In J. EXPER. MED., 80:1:17, July 1, 1944.

Conclusions

Results have been presented of the application of a simplified technic of ultraviolet photomicrography to a study of the specific lesions in muscle in subjects with progressive muscular dystrophy. An exact description of the histological changes occurring in this syndrome, as revealed by photomicrographs in ultraviolet light, is difficult at this time because of the lack of an adequate system of nomenclature. Attention has been drawn, however, to lesions of consistent character, found in sections of muscle removed at biopsy, which appear to be specific for the disease.

Perilunar Dislocation of the Carpal Bones and Dislocation of the Lunate Bone

W. Russell MacAusland, M.D., Boston, Massachusetts. In SURGERY, GYNECOLOGY AND OBSTETRICS, 79:3:260, September 1944.

Conservative Treatment. There is now general agreement that immediate manipulative reduction is the treatment of choice in fresh dislocations. A fresh dislocation is considered one that is less than two weeks' old. If reduction can be accomplished within this period, the procedure gives almost constant success.

Fixation is maintained for three weeks in cases in which there are no associated fractures. Exercises and use of the fingers are begun as soon as the operative discomfort has subsided. After three weeks, the wrist is brought to the neutral position and thus maintained for two weeks longer. Still another week of fixation with the wrist in the position of slight hyperextension is advisable. In the later convalescence an adhesive strapping, a leather wristlet, or a bandage provides sufficient protection. Recovery is complete in six weeks or two months, but forcible hyperextension of the wrist, such as would be necessary in playing golf, should be avoided for at least three months.

Reconditioning Notes

In BULL. U.S. ARMY MED. DEPT., 81:31, October 1944.

A program to prepare neuropsychiatric patients for return to military duty or to civilian life in the best possible physical and mental condition was announced on August 6th. Those men with psychiatric disturbances will participate in carefully organized convalescent activities under the guidance of psychiatrists. Patients will be permitted sufficient latitude to pursue, as far as possible, interests that will be useful in later Army careers or civilian life. They will wear duty uniforms instead of hospital garb, and they will be under military discipline. The schedules will include physical reconditioning and occupational, educational, and recreational therapy. Any patient who has a remote chance of being salvaged for additional military service will be given a trial in reconditioning.

Mission of Reconditioning Program

The mission of the reconditioning program is to accelerate the return to duty of convalescent patients in the highest state of physical and mental efficiency consistent with their capacities and the type of duty to which they are being returned. Should a soldier be disqualified for further military service, the reconditioning program must provide for his return to civilian life, conditioned to the optimum state of physical fitness, well oriented, and indoctrinated in the duties of citizenship. The mission is accomplished by the use of physical reconditioning, educational reconditioning, and occupational therapy.

Physical reconditioning is the process aimed at the prevention of physiological retrogression during convalescence and directed toward the restoration of full strength and stamina through participation in progressively graded physical activities.

Educational reconditioning is the process of exciting, stimulating, and activating the mind through education, orientation, and information, thereby encouraging a mental attitude conducive to health and normal activity.

Occupational therapy is that form of treatment characterized by assignment to purposeful physical tasks prescribed for restoration of function to injured or diseased muscles, tendons, nerves, and joints, for emotional instability, or prescribed as diversional activity.

Some Causes of Foot Strain and their Treatment

E. J. Crisp, M.B., B.Ch., Sector Consultant in Physical Medicine, E.M.S.; Clinical Assistant in Orthopedics Department, Guy's Hospital, London. In BRIT. J. PHYS. MED. AND INDUSTRIAL HYGIENE, 7:4:107, July-August 1944.

A tired foot demands rest, not exercise, in order to allow the painful muscles and ligaments to recover; it is only after it has ceased to ache and feels refreshed that active physical measures should be commenced.

It is mentioned above that few feet are absolutely normal. Before treatment is begun the foot should be carefully examined for minor deviations from normal, for physical medicine can do so much to correct them and thus prevent future trouble. We should not be content simply to order exercises in a "foot class" or faradic foot baths; we must first take the necessary measures to correct the error of function or posture which predisposes to the breakdown. Thus resisted dorsiflexion and stretching exercises are prescribed for the short tendo calcaneus, the peroneus longus muscle is taught to plantar-grade the elevated first metatarsal, and the intrinsics are retrained, by skilfully given faradism, to straighten out clawed toes. With patience the incoordinated foot may be reeducated and much may be done to increase the mobility both of the stiff foot and of the foot with the high longitudinal arch.

Finally all errors of stance and posture must be corrected. The commonest fault in posture is the increased forward tilt of the pelvis accompanied by internal rotation of the thighs and knees, which we associate with weak gluteal and abdominal muscles. To correct this the individual is instructed to "tuck his tail in," by pulling up and in with his abdominal and down with his gluteal muscles.

Bone Metabolism

Wallace D. Armstrong, Division of Physiological Chemistry, University of Minnesota, Minn. In FEDERATION PROCEEDINGS, 3:3:202, September 1944.

A resume of all knowledge of bone metabolism which might conceivably have some bearing on problems of convalescence, entirely aside from its burdensome length, would be difficult to prepare on account of the numerous disagreements in the literature. Furthermore, many of the investigations have given results which are applicable only in special and restricted circumstances or refer to conditions which can be produced only in animals under experimental conditions. If, on the other hand, the discussion were confined to matters of proven clinical usefulness, only a very limited set of indefinite recommendations could be offered. The only useful function which this review can serve is to describe the needs for further explorations in this field and to indicate, in some cases, the methods by which the information might be sought. An attempt will be made to treat in some degree the following topics: (a) general metabolic consequences of fractures, (b) factors influencing fracture healing, and (c) disuse atrophy of the skeleton.

Cuthbertson has also investigated the influence of massage and passive movements of the injured limb on the nitrogen excretion of both adult and young fracture patients. Four persons aged 34 to 59 years received such treatments applied daily for twenty minute periods beginning relatively late in the period of convalescence (18th to 46th day following the fracture). The daily nitrogen excretion was reduced by 0.55 to 2.62 grams beginning almost immediately following the institution of the physical therapy measures. It is not clear what the nitrogen balance of these patients was at the time the treatments were started. However, in the case of normal uninjured adults no such effect, produced by massage, on nitrogen excretion was observed. It can, therefore, be presumed that the results obtained by Cuthbertson with the fracture cases were in some way associated with the metabolic state of these individuals or that the physical therapy measures influenced nitrogen retention in the injured limb. Some indication was also obtained that an increased retention of sulphur and phosphorus resulted from massage and passive movement of an injured limb. These observations indicate the need for further investigations, employing complete balance studies, of the influence of massage and other physical measures on the excessive catabolism of fracture cases.

Some Guiding Principles in the Treatment of Fractures

W. A. Cochrane, M.B., Ch.B., F.R.C.S. Ed. Surgeon in Charge, Princess Margaret Rose Hospital, Fairmilehead, Edinburgh; Associate Assistant Surgeon, Orthopedic Department, Royal Infirmary, Edinburgh; Lecturer in Orthopedic Surgery, University of Edinburgh. In THE PRACTITIONER, 153:2:80, August 1944.

The dual conceptions of therapy which for long held the field in the treatment of fractures, viz., reduction and fixation, massage and mobilization, have been expanded into a three-fold plan—reduction, fixation, and use, coincidently applied. The nonpaded plaster of Paris casing, the synergic use of muscles and early weight-bearing, as systematized by Bohler, have been mainly instrumental in giving effect to the modern plan, thus satisfying the apparently antagonistic interests of the bones and soft parts. Venous stasis, edema and adhesions are the results of muscular inactivity. Forced passive movements must be avoided.

In the later stages of treatment the corner-stone of final recovery lies in hardening or reconditioning the patient, by restoring muscle power, coordination, speed and endurance, i.e. function. It is done by selective and progressive active and resistive muscle-building exercises. These measures are essential if the patient is to ascend the ladder of function down which he has fallen, and will gradually stretch the majority of adhesions, leaving manipulation of joints under anesthesia for a few cases in which a localized band of avascular adhesions has formed. Remedial light work, selected to use the limb, is effective as a supplement to the precision exercises. A patient cannot be unfit for work one day and fully fit the next. He has to be reconditioned, hardened and up-graded, so that his muscles, subjected to accurate test, can be guaranteed not to let him down. Not a few patients are thought to be malingering because the actual degree of muscle power has never been tested. General impressions as to power and function are not enough. In modern fracture and rehabilitation units the muscles are tested against the load to be imposed at work, and thus a fair deal and hope of a real recovery are given to the patient. The real test of treatment lies in the answer to the question "what is the patient fit for when the treatment is over?" Emphasis must be laid upon the promotion of the final stages of cure by up-grading activities and exercises. The R.A.F. and Service Rehabilitation Centers, and centers such as Berry Hill Hall, are notable examples of the success of concentrated effort in the final phase of restoration. The amazingly high standard of end-results obtained at the present time in modern fracture units and rehabilitation centers is most encouraging and predictive of the plan which must be followed generally.

Post-Traumatic Pain and the Causalgic Syndrome

J. Doupe, C. H. Cullen and G. Q. Chance. From the Winwick E.M.S. Hospital. Nr. Warrington. In J. NEUROLOGY, NEUROSURGERY AND PSYCHIATRY, 7:1 and 2:48, January and April 1944.

It is not uncommon, especially in wartime, to be faced by patients complaining of persistant severe pain in the hand or foot following an injury to a limb, despite the absence of apparent cause. It is with such cases that the present paper is concerned. Excluded from consideration are cases in which post-traumatic pain arises from tender neuromata or obvious vascular abnormalities.

Summary

It was noted that there was a need for a clearer definition of post-traumatic pain.

An attempt has been made to define the causalgic syndrome, using as a basis a theory of the mechanism of production of the symptoms.

This theory ascribed the peculiar qualities of causalgic pain to stimulation of sensory fibers by efferent impulses in the sympathetic fibers.

Evidence in favor of such a linkage was obtained from a study of the reactions to a variety of stimuli and from the results of peripheral nerve, nerve root and sympathetic chain block.

Two types of causalgic syndrome were described depending on whether the site of conjunction of the sympathetic and sensory fibers was proximal, i.e., at the site of the nerve lesion or distal, i.e., near the terminations of the fibers.

It was considered possible that the distal type could occur as a result of some disturbance of metabolism due to edema, ischemia, or some other factor determined by injury to the limb as opposed to a primary injury to the nerve trunk.

A series of cases exhibiting post-traumatic pains was reported, and these were grouped under the terms psychogenic, causalgic and dystrophic.

Comment was made on the vascular and nutritional changes with particular reference to osteoporosis. This reaction was considered to be nonspecific, and it was shown to occur independently of the peripheral nervous system.

Parietal Pain in Lower Right Abdominal Wall

Major Joseph R. Shepler, M.C., and Captain Chester L. Young, M.C., A.U.S. In THE MILITARY SURGEON, 95:3:218, September 1944.

At the turn of the century Carnett first described this condition, which he called intercostal neuralgia, in many papers to which the reader is referred. Bates and Judovich more recently have been carrying the torch.

Etiology

The etiology of parietal neuralgia is basically the same as that of neuralgia of other nerves. The chronic parietal neuralgia often is due to mechanical conditions which may act as predisposing factors for the acute exacerbations. Carnett, Bates and Golwart point out that some form of spinal abnormality causing inflammation or pressure on the spinal nerve root is the most common cause of parietal neuralgia.

It is striking the high per cent of patients complaining of parietal pain that show a definite scoliosis. The scoliosis is frequently accounted for by the fact the pelvis is not level. Often this can be corrected by simple elevation of the sole and heel of the shoe on the low side. This alone or with exercise of the back muscles frequently will cause marked improvement in the patient.

An Industrial Rehabilitation Center

Brigadier F. D. Howitt, C.V.O., M.D., F.R.C.P., Consulting Physician in Physical Medicine to the Army. In BRITISH MEDICAL JOURNAL, No. 4357:52, July 8, 1944.

The Ministry of Labor has opened a Center at Egham for the industrial rehabilitation of male patients. This represents a new experiment in the general field of rehabilitation, and the object is to combine the functions of reconditioning, physical development, restoration, vocational guidance and purposeful training. It is constructed on the lines adopted in Army practice, which has emphasized the importance not merely of finding a job for a man but of finding the right job for him. It has been realized that the complete employment of available man-power, so essential in total war, demands the complete utilization of the individual. He must be placed in an occupation which fully exercises all his available faculties and not in one which is within the easy compass of his competence. While this holds good for the fit man, it is equally important for the disabled. The Center is constructed on the lines which the Army has evolved to meet these problems.

Trench Foot

Capt. Robert C. Berson, M.C., A.U.S., and Capt. Ralph J. Angelucci, M.C., A.U.S. In BULL. U. S. ARMY MED. DEPT., 77:91, June 1944.

Baron Larrey described the ravages of cold during Napoleon's ill-fated attack on Moscow and was the first to recognize the condition now known as "trench foot." He showed that the extreme cold was not responsible but that it was lesser degrees of cold associated with dampness; nevertheless, the armies engaged in 1914 were not prepared for the great number of cases which the special conditions of static trench warfare produced. Since then, however, many articles and much experimental work have added to our knowledge of the pathology of trench foot.

Discussion

Although it seems to be clearly recognized in the literature (The Bulletin has stressed the importance of slow thawing and the application of actual cooling during the period of thawing), only 34 of our patients gave a history of any specific effort being made at previous medical installations to bring this about. This omission of early treatment is extremely important, for after several days have elapsed the golden opportunity has been lost, and there is little reason to think that any therapy later will be particularly helpful. This condition should be considered as a medical emergency. Therapy should be applied by the first medical officer who sees the patient and his evacuation should be considered only after early treatment has been fully exploited or evacuation can be accomplished without interruption of therapy.

Suggestions for early treatment:

1. Remove all potentially constricting clothing and shoes.
2. Prohibition of walking or weight bearing on the feet.
3. Immediate application of cooling by the most efficient method at hand, and the continuation of such cooling until its slow withdrawal does not result in the feet becoming noticeably warmer than the rest of the body.
4. Strict avoidance of all warming agents, clothing, dressing, hot water bottles, stoves, etc.
5. Strict prohibition of all massage.
6. Avoidance of sympathetic block at this early stage.

Neuromuscular Denervation, Atrophy and Regeneration

H. M. Hines, Department of Physiology, State University of Iowa, Iowa City. In FEDERATION PROCEEDINGS, 3:3:235, September 1944.

This report will include a brief description of the changes that occur in skeletal muscles following the loss of their nerve supply and of the changes that take place in these muscles when they undergo regeneration subsequent to reinnervation.

The loss of motor nerve is followed by the appearance of fine fibrillary contractions in the muscle. These contractions make their appearance soon after the degenerating nerve loses its excitability and persists as long as the muscle retains contractile properties. They appear to be asynchonous contractions of either the fiber as a whole or a portion of its structure and fail to cause the development of any appreciable amount of tension by the muscle. It is believed that denervated muscle becomes sensitized to some substance in its environment. Acetylcholine and potassium have been suggested as agents responsible for the excitation of fibrillary activity. In any case the appearance of this fibrillation is generally coincident with an acceleration of the degenerative changes in the muscle.

In many instances denervated muscles have been observed to develop a static contracture or permanent shortening which is gradually lost upon reinnervation. It is not clear to what extent this condition is due to an actual shortening of the muscle fiber per se or to the effects of attending fibrosis in tendons, fascia and joints.

Electrical stimulation provides an effective means of delaying atrophy only if it is done under conditions which result in effective tension development by the muscle. The rate of atrophy following tenotomy is not retarded by electrical stimulation. In this condition the muscles contract but fail to develop appreciable tension during stimulation. It has been suggested that the energy levels and metabolites established by the chemical reactions associated with tension development may be necessary for essential anabolic processes in muscle. It is possible also that a certain amount of tension is required to maintain the proper alignment of the molecular patterns in the submicroscopic structures of muscle.

Considerable controversy exists as to the efficacy of electrical stimulation in the retardation of atrophy. It would appear as if many of the negative results were due to a failure to employ stimuli of sufficient strength to cause strong muscle contractions. Electrical treatment with shocks too weak to cause strong contractions have proven to be ineffective. Another variable must be considered, namely the degree of stretch existing in the muscles during the time of their treatment. If a denervated muscle is weighted during the treatment period, the effects of electrical stimulation are much more pronounced than when less favorable conditions for tension development are allowed. Although it is possible to retard atrophy by electrical stimulation, it is impossible to prevent a gradual decline in the strength of denervated muscle. That is, the treated muscles are stronger than their untreated denervated controls but the increase in strength is due a greater quantity of contractile tissue rather than to any improvement in functional quality. It was found that when the technics of stimulation which had proved to be very effective in retarding the atrophy of denervated muscles were applied to normal muscle they very frequently caused some degree of atrophy and loss of strength. This observation suggests that it may be a fallacy to transfer technics found effective for totally denervated muscles to the treatment of regenerating and partially paralyzed muscles. A problem exists to find a noninjurious stimulus pattern which will be tolerated by the patient and still be effective in retarding atrophy and facilitating regeneration of muscle. It should be remembered that delay in atrophy can only be of esthetic value unless the muscle subsequently undergoes functional reinnervation.

The Effect of Appropriate Electrical Stimulation on Atrophy of Denervated Skeletal Muscle in the Rat

F. S. Grodins, S. L. Osborne, F. R. Johnson, S. Arana and A. C. Ivy. From Physiology Dept., Northwestern University Medical School, Chicago. In AMER. J. PHYSIOLOGY, 142:2:222, September 1, 1944.

The literature is not in agreement regarding the effect of the electrical stimulation of denervated skeletal muscle on its rate of loss of weight and strength. Some investigators have observed that the rate is retarded and others have observed either no effect or an unfavorable effect. This study was undertaken with the idea (a) that the most appropriate electrical stimulus for degenerating muscle has not been determined and applied, and (b) that a type of current could be found which would produce a smooth tetanic contraction of denervated muscle without causing normal muscle to contract and without causing pain.

The electrical stimulating apparatus used in this study was a wide frequency range electronic generator with a frequency range of from 0 to 150,000 cycles per second.

Summary and Conclusions

1. Stimulation with 25 cycle alternating current markedly diminishes the rate of atrophy in the denervated gastrocnemius muscle of the rat.
2. No such beneficial effect was demonstrated with a "slow sinusoidal" current.
3. Some theoretical and practical aspects of electrical stimulation are discussed.

An Experimental Study of Different Methods of Artificial Respiration

A. Hemingway, M.Sc., M.B., Ch.B., Professor of Physiology and E. Neil, B.Sc., M.B., Ch.B., Demonstrator in Physiology. In BRITISH MEDICAL JOURNAL, No. 4355:836, June 24, 1944.

It is concluded that the rate of oxygen uptake and the cardiac output are usually greater with the rocking method than with the Schafer; the O_2 tension of the venous blood is higher.

The reasons for the differences in oxygen uptake with different methods of artificial respiration are not completely clarified. In any one case it would seem to be necessary to consider the following points: (a) Alterations in the tone of muscles due to stretch reflexes which would entail increased oxygen consumption. (b) If tissues are anoxic then increased oxygen supply to the part concerned might be followed by an increased uptake. (c) The higher rate of oxygen uptake with the rocking method than with Schafer's method may be due, in part, to the increased cardiac output.

Finally, we are in full agreement with the view (First Aid in the Royal Navy, 1943) that the Schafer method should be immediately instituted when resuscitation is undertaken, and that no time should be lost while preparations are being made for the use of any other method.

A Reconditioning Program for Disabled Soldiers

Harold C. Lueth, Lieutenant Colonel, Medical Corps, A. U. S. In ILLINOIS MEDICAL JOURNAL, 86:2:96, August 1944.

Maximal utilization of the nation's manpower is of vital concern to everyone. With the realization that the manpower resources of the country are limited and an awareness of the tasks of total war, every effort must be made to garner the total resources of manpower. The Medical Department of the United States Army has recently put into operation a plan designed to return sick and injured soldiers to full duty as soon as is possible, by means of the resources of modern medical treatment. A sound realistic approach to the problem has already been put into execution at several large general hospitals.

Summary

A practical scientific program for the reconditioning of disabled soldiers has recently been put into operation in all army hospitals, by the Surgeon General. It is designed to return sick and injured men to full duty at the earliest practicable time, thus conserving the trained manpower of the nation. The program includes physical, mental and emotional reconditioning. Physical exercises are begun as early as possible and in many instances they are started while the patient is in bed. The ward medical officer prescribes the physical training and specifies when it can be begun and the amount to be given. The basis of physical reconditioning rests on a graduated system of calisthenics, drills, sports and military training. Coincident with physical reconditioning, mental and emotional reconditioning are conducted by specially trained officers and enlisted men. Early results of the new program indicate that soldiers are returned to full duty much earlier than under previous plans. The ultimate success of the plan rests with the individual medical officer, for he must determine how and when reconditioning must be conducted, in keeping with accepted scientific practice.

The Adequacy of the Physical Therapy Service in Vocational Rehabilitation

John S. Coulter, M.D. In HOSPITAL PROGRESS, 25:7:205, July 1944.

To provide hospital care for vocational rehabilitation a hospital must have a department of physical medicine, which should be under the supervision of a physician. Physical medicine is treatment by physical and occupational therapy. The adequacy of physical therapy depends on efficient personnel, proper equipment, good location, and the coordination with an occupational therapy department. It is realized that the present war must terminate before a physician specializing in physical medicine can be secured to head this department.

The coordination of physical, occupational, and recreational therapy often is seen in a patient during a psychologically protracted convalescence. In recreational therapy, games are played in such a way as to encourage the man to excel and beat the technician. Often in treating a patient, he may spend a long time in the physical and functional occupational therapy departments, but if he is not able to achieve his proper place in social accomplishments he will never be a rehabilitated patient. For instance, a man with an amputated hand with physical and functional occupational therapy and an artificial hand, would use his arm and artificial hand to hammer nails and saw wood, but he would not be at ease and when the artificial hand was not in use he would keep it in his pocket. Not until he found that he could excel at the pool table did he realize that even with such a hand he could approximate equality with others.

Aitken shows proper coordination of physical, occupational, and recreational therapies which is being successfully tried at a pilot rehabilitation clinic in Boston.

Hence, in summary, the adequacy of a hospital physical therapy service depends on: (1) trained personnel; (2) proper equipment; (3) good location; (4) coordination with the occupational therapy department.

Underwater Treatment Tank

Captain Arthur M. Pruce, M.C., A.U.S. In BULLETIN OF THE U. S. ARMY MED. DEPT., 81:121, October 1944.

Hydrotherapy is of value in diverse types of injury treated in the physical therapy section of a general hospital. Arm and leg whirlpool baths which are standard items of issue to station and general hospitals are valuable in most instances, but only the distal joints, elbow and wrist in the upper extremity, and knee and ankle in the lower extremity can be immersed. In injury to the back, hip joint, upper thigh or shoulder joint and upper arm, the leg and arm whirlpool baths are inadequate. Only when the body is completely immersed are these joints accessible to treatment. The need for an underwater tank of the Hubbard type led to the construction of a simple unit made entirely of nonessential materials at the Stark General Hospital.

This unit has been effective in:

1. Acute and chronic low back strain.
2. Gunshot wounds of hip and shoulder.
3. Fractures:
   (a) Shoulder and upper arm, hip, and thigh.
   (b) Multiple fractures of extremities.
   (c) Multiple rib fractures.
4. Shoulder dislocations following open and closed reduction.
5. Burns:
   (a) Acute, involving large parts of the body.
   (b) Chronic burn ulcers involving extremities.
6. Following plastic surgery to the axilla.
7. Peripheral nerve injuries in lower extremity.

Refrigeration for the Preservation of Traumatized Tissues

Lyman Weeks Crossman, M.D., Surgeon, New York City Hospital. In THE CANADIAN HOSPITAL, 21:8:52, August 1944.

Most of our experience has been at the New York City Hospital with patients who were old, debilitated, undernourished, usually unemployed, suffering not from one disease but from many pathologic states and with no incentive to live. After varying periods of neglect they would be admitted with gangrene—diabetic and/or arteriosclerotic, perhaps with superimposed infection of the feet. Previously all other types of anesthesia had been tried and the mortality was high—most of the patients died of shock, or infection, or embolism. Now, most of these old people live and walk out of the hospital because with refrigeration anesthesia there can be no shock, or infection, or embolism.

Summary

Refrigeration cannot restore life to dead tissues but can preserve traumatized tissue.

Tourniquets may be used for longer periods than previously thought safe.

Mangled tissues, arteries blocked by embolism, burns and frostbite are some of the indications for refrigeration.

Artificial Respiration: The Need for a Greatly Increased Rate in Asphyxia

P. R. Tingley, M.B., Ch.B. In BRITISH MEDICAL JOURNAL, No. 4367:367, September 16, 1944.

In every method the present rate is slow. Four seconds is a long time when applied to one respiratory cycle. Indeed, in most methods it has been necessary to include a pause of one to two seconds in each cycle in order to keep the rate down to the so-called normal. In Shafer's the interval is at the end of inspiration; in Eve's it is at the end of expiration.

In Schafer's method it is difficult to occupy fully even three seconds with the actual movements necessary for one cycle.

Silvester's method, because of the nature of the movements necessary, takes more time to perform than Schafer's, and a rate of about 45 times a minute would seem to be the efficient maximum. My limited experience of Eve's method does not permit me to suggest the most suitable rate, but the same rule holds true—"as fast as possible consistent with no sacrifice in volume"—and I have little doubt that the efficient rate of rocking could be at least doubled, and probably much further increased.

Conclusion

The respiratory requirements are so great in all cases of asphyxia which require artificial respiration that, in such cases, the adoption in all methods of as fast a rate as possible, consistent with efficiency, must result in the quicker resuscitation of the patient, thereby enhancing the chances of life.

Postural Adjustments in Convalescence and Rehabilitation

F. A. Hellebrandt, Section of Physical Medicine and the Department of Physiology, University of Wisconsin, Madison. In FEDERATION PROCEEDINGS, 3:3:245, September 1944.

No one has yet succeeded in demonstrating that poor bodily mechanics augment energy metabolism significantly. Increased rotatory stresses secondary to the assumption of mechanically poor postures are equilibrated with ease. To correct such stances would require the strong phasic contraction of the antigravity extensors. Indeed, when "poor" postures are examined from a biologic rather than a mechanistic viewpoint, they appear to be compensatory. They are the stances requiring the least energy for their maintenance.

Two additional arguments have been used to condemn mechanically poor postural adjustments. Since they throw the weight of superimposed parts on structures not suited to maintain them, they may give rise to a type of microtrauma which may lead to pathological deviations from the normal which may be associated with pain. Thus the application of mechanical supports or devices aimed at a redistribution of weight, often relieve incapacitating discomfort. Many so-called poor postures are disfiguring without being the source of pain.

Many years ago Goldthwaite postulated an anatomico-mechanistic basis for chronic ills related to the visceral functions. The literature on this subject is voluminous and uncritical. The flat chest, abdominal visceroptosis, and crowding of the pelvic organs of the individual with poor posture are credited with a leading role in the pathogenesis of innumerable diseases. This concept is based upon more or less tenuous evidence without regard for the wide margins of safety under which all organ systems function, and the paucity of proof that the anatomical position of a viscus is a valid criterion of the adequacy of its physiological behavior.

The rehabilitation of the postural adjustments of the sick and injured gives rise to several fundamental problems which have yet to be explored. Those secondary to traumatic lesions of the bony levers and their articulations are too individual for generalization. The orthopedic surgeon, the skilled craftsmen who construct orthopedic appliances, and the physical therapy technician form a team well equipped to handle these purely mechanical problems. How amenable postural adjustments are to correction in patients suffering from functional diseases or psychosomatic disturbances is unknown. Long hospitalization because of debilitating intoxications, infectious, deficiency, or metabolic diseases have a uniform effect on the postural adjustments. Inactivity is invariably associated with loss of strength and tone.

The technic of muscle reeducation is a topic of current controversy. The individuation of desired skills from mass responses is the natural method of motor learning. The newer approach consists of the meticulous building of increasingly complex patterns of movement from the carefully learned primary actions of isolated muscles or small groups.

Poor posture was credited with responsibility for the breakdown of men under the stress of battle conditions during the last war. This gave rise to considerable attention to the problems of the body mechanics. As a result posture training has been practiced extensively in the schools of this country during the interim between the last and the present war. Whether or not this has had a telling effect upon the bearing of our youth awaits full publication and study of the medical data of selective service boards.

The Use of Discontinuity of Strength Duration Curves in Muscle in Diagnosis of Peripheral Nerve Lesions

Lewis J. Pollock, M.D., James G. Golseth, M.D., and Alex J. Arieff, M.D., Chicago, Illinois. In SURGERY, GYNECOLOGY AND OBSTETRICS, 79:2:141, August 1944.

For this study an apparatus was devised which in principle is similar to the one described by Conrad, Haggard and Teare but which differs in that it is entirely alternating current operated. It has the further advantage of permitting us to reproduce the wave form irrespective of the time interval between stimuli. With this apparatus, we are able to obtain an impulse of rectangular wave shape lasting for as short an interval as 30 microseconds. Thirty-three different time intervals, selected to conform to a logarithmic scale were made available. They ranged from periods as long as 2 seconds to one as short as 30 microseconds.

Conclusions

1. Discontinuity of strength-duration curves in degenerating and regenerating nerve-muscle complex have been found, confirming Adrian's observation.

2. During the state of denervation the strength-duration curve is continuous.

3. The appearance of a discontinuity in a strength-duration curve when a continuous one indicative of denervation had formerly been present is a more accurate indication of recovery than a diminution of the chronaxie.

4. By combining the results of stimulation by progressive currents of long duration with strength-duration curves, one may differentiate degeneration, recovering, and partial injuries.

Stimulation of Denervated Skeletal Muscle With Alternating Current

F. S. Grodins, S. L. Osborne, F. R. Johnson and A. C. Ivy. From Dept. Physiology, Northwestern University Medical School, Chicago. In AMER. J. PHYSIOLOGY, 142:2:221, September 1, 1944.

The response of normal nerve to sinusoidal alternating current has been studied by a number of investigators. A number of quantitative treatments of the excitation data have appeared; for example, that of A. V. Hill and his coworkers. This form of current possesses certain characteristics which might be of value in the application of electrical stimulation to the treatment of denervated muscle. The present study was undertaken to obtain information regarding the responses of denervated skeletal muscle to alternating current stimulation with special reference to its application in clinical electrotherapy.

Summary and Conclusions

1. For threshold stimulation with alternating current, denervated muscle has an optimum frequency in the neighborhood of 1 to 3 cycles per second.

2. The optimum frequency and the slope of the intensity-frequency curve is a function of the index of response chosen to evaluate it. When the muscle is called upon to do considerable work or exert considerable tension, the optimum frequency is about 25 cycles per second and the slope of the curve below this point becomes very steep.

3. The relation of these results to the interpretation of the mechanical response in denervated muscle and to practical electrotherapy is discussed.

Circulatory Adjustments: The Peripheral Circulation

Eugene M. Landis, Department of Physiology, Harvard Medical School, Boston, Mass. In FEDERATION PROCEEDINGS, 3:3:231, September 1944.

In considering the physiological state of the peripheral blood vessels during recovery from disease or injury, it must be recognized at once that the term convalescence, as usually used, includes a wide variety of completely different conditions. Thus, a group of young soldiers, though initially in good physical condition, will as individual patients in their convalescent period present completely different peripheral circulatory problems. These will depend upon the site, nature and seriousness of their wounds, as well as upon the operative treatment required. Even during recovery the reactions of the peripheral vessels will be influenced by the amount of blood lost, and by the promptness and completeness with which plasma proteins and erythrocytes have been replaced either by intravenous administration or by the patient's own tissues.

The adjustments to physical exercise depend only partly on the peripheral vessels but the observations of Mann indicate the period required for complete recovery even after fever and active infection have disappeared. Thus, after pneumonia the ability of convalescent patients to adjust to exercise, as measured by their blood pressures after graded work, was slow. From 8 to 17 days without fever were required for return of maximum work tolerance. The behavior of blood pressure during graded work in this series was a more sensitive indicator of progressing convalescence than was the pulse rate.

As a second fundamental principle it must be emphasized that the functional effectiveness of the peripheral circulation involves more than blood vessels, their innervation and their reflexes. Return of venous blood from the peripheral vessels depends upon intra-abdominal and intra-thoracic pressures and, particularly in balanced standing or walking, is hastened by the "muscle-pump" working in association with the venous valves. The importance of avoiding stasis in the lower extremities of bedridden patients, by means of deep breathing exercises and graded calisthenics in bed, is well established. Such muscular movements reduce significantly the incidence of postoperative thrombosis and pulmonary embolism.

A Recapitulation on One Polio Siege With Some Notes on Hot Pack Therapy

E. Dwight Barnett, M.D., Director, Sonoma County Department of Health and Hospitals, Santa Rosa, California. In HOSPITALS, 18:9:41, September 1944.

Conclusion

We feel that there is no doubt that the results of our series of Kenny treatments—in that all but 8 per cent are able to do everything normally, and that only 2 per cent are seriously involved—show that there is a great deal of value in the treatment if it is properly applied and applied over a long enough period of time.

I should like to emphasize the proper application of packs. Even in our own institution we found certain workers who were far superior to others in the application of packs. Some of the workers would wave the packs in the air in order to cool them, which made the packs almost useless and little relief was obtained.

Another valuable point in the Kenny treatment is that patients after two weeks of the disease are more comfortable and in much better general physical condition than patients are at the end of three months with the old type of therapy.

It is our opinion in this institution that the Kenny treatment is by far the best thing now in use to avoid crippling and bad results from infantile paralysis, and that all hospitals should see that there are those in their institutions who are trained Kenny technicians—trained in one of the approved schools—so that they are able to give the best of Kenny care.

The Postwar Challenge to Orthopedic Surgery

Guy A. Caldwell, M.D., New Orleans. In J.A.M.A., 126:5:269, Sept. 30, 1944.

The postwar challenge to orthopedic surgery is presented by the assurance of an overwhelming demand for its assistance to rehabilitate the cripples and the equal certainty that, although the number of trained orthopedists available to meet this demand will be greatly increased, it will be insufficient.

What can we do to meet this challenge? First, we must inventory our assets and organize them to meet this situation to the best advantage. It is obvious that the basic need is for the rapid but efficient training of a large number of younger physicians. To accomplish this it will be necessary for every practicing orthopedist to constitute himself a teacher and use his facilities and time to assist in training several younger men to succeed him. More articles, periodicals and books on orthopedic problems should be published. Medical schools and their graduate departments should enlarge their facilities and apportion their time to provide more emphasis on instruction in this surgical specialty. Hospitals should begin to organize their orthopedic services for approved resident training in this special branch of surgery. Nursing schools should encourage some of their graduates to specialize in this field and others to train in physical therapy and occupational therapy.

Physiological Aspects of Physical Therapy and Rehabilitation

Ora L. Huddleston, Major M.C., A.U.S., Physical Therapy Section, Fitzsimmons General Hospital, Denver, Colorado. In FEDERATION PROCEEDINGS, 3:3:254, September 1944.

Physical therapy always has participated in the rehabilitation of the sick and the disabled. At the present time it constitutes an integral part of practically all rehabilitation programs. Its importance in the treatment of wounded soldiers and veterans was fully appreciated by the medical profession during and following the last war. Marked advances were made in the treatment of wounds and injuries by the application of physical therapy principles. Many of these principles were employed in definitive therapeutics and were further utilized during the period of convalescence. The use of such principles contributed to the establishment of maximum physical and psychological benefits which, when combined with supplemental vocational or professional training, qualified the individual to resume his economic and social responsibilities as a citizen in civilian society. The earlier advances of physical therapy have been maintained somewhat since that time but probably not to the high degree of development obtained at the close of the last war. New interest and an even greater appreciation of these principles have developed during the current conflict. It seems very likely that noteworthy contributions will be forthcoming which will hasten and even exceed the maximum amount of rehabilitation obtainable a few years ago.

Current conception of the role of physical therapy in rehabilitation: It is believed that physical therapy can participate most effectively in rehabilitation by utilizing the following procedures: (1) institute physical therapy treatment as soon as possible; (2) treat the individual as a whole which means treating the psychological aspects of the patient's disabilities as well as the physiological and pathological processes; (3) in prescribing physical therapy treatments, make use of principles which are based on physiological reactions of the body, and outline a treatment program which is best suited to correct the individual and collective abnormalities of the person; (4) coordinate and integrate the physical therapy treatment program with other types of treatment. When the above mentioned procedures are followed, physical therapy will contribute maximum service to the rehabilitation of the individual.

Occupational Therapy in a Naval Hospital

Hardy V. Hughens, Captain (MC) U. S. N. and Leon O. Parker, Commander (MC) U. S. N. R. In U. S. NAVAL MEDICAL BULLETIN, 43:2:329, August 1944.

It is not always possible to give patients the exact types of exercises needed in the various jobs found around a Naval hospital. Therefore it becomes necessary to supplement their work programs with special gymnastic exercises or sports.

Groups of patients, for example, may be assigned to such exercises as lifting sandbags for back muscle development, or lifting sandbags strapped to the lower extremities for abdominal or leg muscle development.

These gymnastic exercises are given by the physical therapy department by means of simple sandbags weighing from 10 to 100 pounds for lifting, and 1- to 8-pound bags with straps that can be secured to the hands or feet.

It should be remembered in assigning exercise, work, or athletic periods that a number of short periods throughout the day are better than fewer long periods in which the point of fatigue may be reached.

When patients can be interested in a competitive game incorporating suitable exercise in the right amount, they can be induced to take such exercise without complaint. Even patients with fully developed neuroses often become thoroughly engrossed in the competition of a game. Such games as horseshoe pitching, bowling, checkers on a board 16 feet square with checkers weighing 10, 20, 30, or 50 pounds, volleyball, and medicine ball have been used successfully. Swimming is ideal.

Early Movement in the Treatment of Closed Fractures

B. H. Burns, M.B. Camb, FRCS and R. H. Young M.B. Camb, FRCS. In THE LANCET, No. 6301:725, June 3, 1944.

Advantages of Movement

The less plaster there is, the less stiffness there will be. Where you can dispense with plaster and institute early movements to all the joints, stiffness from adhesions will not occur, except where there is gross disorganization or deformity of a joint. A full range will have been recovered by the time the bone is united and often long before. The circulation is rapidly restored to normal and the loss of vascular tone which follows long immobilization in plaster is avoided. By the time the bone has united the limb appears normal in range of movement, color and absence of edema.

It has been said that early movement delays the disappearance of spasm and increases effusion. In our experience this is not so, so long as movements are not forced. Spasm is increased only if movements are pushed beyond the extent that they are voluntarily permitted.

Broadly speaking, fractures may be divided into two groups—those that unite easily and those that unite with difficulty. In the first group are fractures of the ribs, the clavicle, the femur, oblique fractures of the humerus, metacarpals and metatarsals, and fractures of cancellous bone. In these fractures, union will take place without firm fixation of the fragments. They do not require immobilization for the sake of obtaining union. In consequence, the amount of splintage needed is very small and early movements of the neighboring joints can be encouraged. Treatment can concentrate on soft parts; for instance, a patient with a fractured femur or traction can move the knee, and a patient with a spiral fracture of the humerus, treated with a U-shaped slat can move the shoulder and elbow; in most fractures of the metatarsals plaster can be avoided, since shoes give all the support necessary; and a shoe can be taken off for exercises.

In fractures involving joints early movement is no less desirable. In general, and with the exception of the scaphoid, these fractures are through cancellous bone and therefore readily unite. Fixation is not necessary to obtain union. It is only required to maintain a corrected position after reduction.

Conclusion

The stage has passed when we have a right to be satisfied by union of the bone in good position; that can be expected in most instances. Not only is full restoration of function required, but we must concern ourselves with its early return. This is greatly facilitated by early active movement of the joints; and in some fractures internal fixation makes this possible. By early movement, stiffness is prevented and progress towards full recovery is smooth and rapid. The patient will have little need of rehabilitation. But if, from immobilization, the joints have become stiff, he will need rehabilitation in all its manifold varieties.

The Effect of Galvanic Exercise on Denervated and Reinnervated Muscles in the Rabbit

E. Gutmann and L. Guttmann, Dept. of Zoology and Comparative Anatomy, Oxford. In J. NEUROLOGY, NEUROSURGERY AND PSYCHIATRY, 7:1 & 2:17, January and April 1944.

Summary

Daily application of galvanic exercise with a current strength sufficient to elicit vigorous contractions of the muscles was found to delay and diminish atrophy in denervated and reinnervated rabbit muscle. The most satisfactory results were obtained with a daily exercise of 20-30 minutes duration. The effect was greater the earlier the treatment was started following denervation.

Treated muscles showed larger muscle fibers and less fibrosis than untreated ones.

After a maximal treatment (1 hour daily), beginning immediately after denervation, the muscles lost only 17 per cent in weight in 60 days, compared with a loss of 59 per cent in untreated muscles.

No attempt was made to avoid fatiguing of the stimulated muscles during the exercise and this did not prevent the beneficial end effect.

The main effect of the treatment appeared during the period of denervation but a difference was still demonstrable 4 months after interruption of the galvanic exercise. The effect of treatment is therefore not masked by the normal process of muscle recovery after reinnervation.

No certain effect of galvanic exercise was found on the time of onset of motor recovery, but the degree of motor recovery was higher in the treated muscles.

Fibrositis of the Rectus Abdominis Muscles Causing Dyspepsia

R. Simpson Harvey, M.B., B.S. Lond. In BRITISH MEDICAL JOURNAL, 4359:114, July 22, 1944.

Numerous cases of dyspepsia, or pain after food, fail to reveal any physical abnormality on ordinary routine examination. Even x-ray investigation of the stomach, duodenum, and gall-bladder is equally sterile of definite evidence of disease, and vague diagnoses of gastritis, duodenitis, or chronic cholecystitis are made.

In treating such cases one will be well repaid by making a careful examination for tender areas of fibrositis in the upper ends of the rectus abdominis muscles—particularly in their origins from the surfaces of the fifth to the seventh costal cartilages, the xiphoid cartilage, and the costo-xiphoid ligament. In a surprising number of cases tender nodules of fibrositis will be found, and after these have been "broken up" and treated by skilful massage the dyspeptic symptoms will disappear as if by magic and the patient will regain robust health.

I have had some difficulty in getting masseuses to carry out the treatment properly. The massage should be done with the tips of the fingers, working the skin in a circular movement and pressing upon the tender area as deeply and firmly as the patient will allow—short of bruising the tissues. Light stroking movements have as little curative effect as sticking on a ten-and-sixpenny stamp, the usual fee for the attendance. Masseurs should have three main qualifications — very sensitive fingers, very strong fingers, and complete ruthlessness! Massage should be given twice or, at the most, three times a week. An infra-red lamp will help considerably, but it should be left with the patient to use for hours at a time.

Bronchial Asthma: Treated by Breathing Exercises

H. I. Weiser, M.D. In THE LANCET, No. 6313:275, August 26, 1944.

Method

Treatment begins with massage of the chest, back and front, between the attacks; at each session massage should be continued until a skin reaction is visible. Rhythmic compression of the chest follows, carried out by the physical therapist with the patient lying first on his back and afterwards on his side. At each compression the patient emits a hissing or humming sound throughout expiration. Blowing exercises at the spirometer follow, the patient being taught to read off and note down his own vital capacity. Later in treatment the patient carries out increasingly vigorous exercises in the gymnasium. When a patient makes a muscular effort — whether in gymnastics, when playing a game or merely in the course of his ordinary life (for instance, when going upstairs)—he should make a practice of breathing out with a hissing or humming sound. No attention need be paid to inspiration, which takes place before or after the effort is made.

At each treatment session, after a few strenuous exercises the patient is allowed to rest, either sitting, or lying on his back with his knees bent. During this interval the physical therapist compresses his chest again, and the patient hisses or hums as he breathes out. The patient counts his breaths aloud, and after the prescribed number (between 20 and 80), begins his exercises again. The rest-pauses are increased towards the end of the session, and the number and strenuousness of the exercises are diminished. At the end of each treatment the vital capacity is measured again, and it is specially important that the patient should read off and take down all measurements of his own increases in efficiency, not only the spirometer readings, but the number of strokes he pulls on the rowing apparatus and so on. Exercises should be numerous and varied so that he maintains a lively interest in them. If he is given only a few exercises, however useful they are, they become mechanical and are carried out without interest and with little success. Besides gymnastic exercises with and without apparatus he should be given lessons in boxing and ju-jitsu, and plenty of exercises for correcting posture.

After 2-4 weeks of treatment the breathlessness is deliberately induced in the patient by giving him several exercises in quick succession. He will find that instead of developing the dreaded attack he is able to get rid of the breathlessness quickly by concentrating on prolonged expiration. During an attack the untrained asthmatic patient gasps helplessly for breath, and his air-vesicles are filled to maximum capacity. But the trained patient has learned to "breathe away" an attack: he knows that the only way to relieve himself is to concentrate on long expiration. His relations must also be taught how much the severity of an attack depends on their reaction to it. The patient is given this regime to follow at home:

1. He is to breathe out with a humming sound 5-10 times, morning and evening.

2. He should sing and whistle as much as possible during the day.

3. He is given morning and evening gymnastic exercises to do.

4. He is told that coughing is bad manners; he should avoid it as much as possible by taking several quick inspirations, making the expirations with a hissing sound.

The Management of War Amputations in a General Hospital

Rufus H. Alldredge, Capt., (MC), AUS. In NEW YORK STATE J. MED., 44:16:1764, August 15, 1944.

The problems confronting the orthopedic surgeon on an amputation service in a general hospital are many and complex during war. The work consists chiefly of handling war casualties on whom the guillotine amputation has been performed six to twelve weeks previous to admission. Treatment is continued until the patient is properly fitted with a prosthesis and discharged from the hospital.

Most of the patients who are not ready for surgery because of retracted skin or insufficient healing of a guillotine amputation are placed in skin traction with skin glue and stockinette. Those who do not need traction are referred to the physical therapy department for exercises, wrapping of the stump with ace bandages, whirlpool and ultraviolet light. Proper wrapping of the stump and active exercises of the involved extremity are the most valuable measures which physical therapy has to offer in the treatment of these cases. Patients who have undergone amputation of an upper extremity are referred to the occupational therapy department for instruction in the use of the normal extremity and for understudy of other patients using an upper extremity prosthesis.

Rehabilitation of the Injured in This War and the Last

H. A. T. Fairbank, D.S.O., M. S. Lond., F.R.C.S., Consultant Adviser in Orthopedic Surgery, Ministry of Health. In THE LANCET, No. 6309:134, July 29, 1944.

Active and Passive Movements

The use of cords, pulleys and weights has gained in popularity since the war began, largely owing to the advocacy of Mrs. Guthrie-Smith, whose experience of the method dates from the last war. They are used (1) for eliminating friction and gravity by suspending the limb to be exercised; (2) for "auto-assisted movements," the sound limb being made to exercise the damaged one; (3) for exercise against graduated resistance. The auto-assisted movements differ from passive movements in that they are completely under the control of the patient. Except in the presence of paralysis, passive movements performed by a masseuse are generally condemned, but where the forearm muscles are paralyzed, passive movements of the fingers cannot be commenced too early or repeated too frequently. Resisted exercises are used in many hospitals, particularly for the quadriceps femoris, but in a few they have fallen from favor; judgment is required, particularly in the early stages of recovery.

In this war the lighter forms of handicraft are much more generally favored, and the heavier types, except carpentering and gardening, are less often provided. Useful though selected occupations undoubtedly are in overcoming stiffness of joints, they rarely induce a full range of movement; so suitable exercises are always required in addition. Heavy work in shops is largely replaced by vigorous physical therapy, competitive games, and such things as lifting heavy logs and wood-chopping. In some hospitals ancillary treatment is so thorough and complete that many Service cases on discharge return direct to duty, or require little hardening in a convalescent depot to restore them to the superb physical fitness essential in the soldier of today.

In fractures of the femoral shaft early movement of the knee-joint—much earlier than formerly—is encouraged by many surgeons. This has been facilitated by the use of skeletal traction: early movement in these cases, however, increases the risk of infection of pin-tracks in the tibia unless rotation of the pin is carefully avoided.

Even in the most unpromising case, seen too late for correction, it is always worth trying graduated exercises, with or without a short initial period in a plaster jacket.

Manipulation

Most surgeons believe that manipulation is seldom useful for restoring movement to stiff joints following fractures; as a rule they prefer to rely on active exercises and occupational therapy. The error of forcibly manipulating a stiff knee when the cause of the limited movement is binding of the quadriceps to the femur at the site of a fracture is now generally appreciated.

Summary

Attention is called to the pioneer work for rehabilitating the injured that was done in the special hospitals in the last war. On the general plan then adopted all modern methods of rehabilitation are founded. The valuable advances mostly in detail—introduced since that time are noted.

The results to be anticipated in certain forms of fracture and other injury are discussed.

The Hyperpnea of Muscular Exercise

Julius H. Comroe, Jr., Department of Pharmacology, University of Pennsylvania. In PHYSIOLOGICAL REVIEWS, 24:3:333, July 1944.

The history or respiratory physiology for the last 60 years has been a succession of attempts to explain all deviations from normal respiration by one theory, whether it be regulation by oxygen content of the arterial blood, by alveolar or arterial CO_2 tension, by arterial blood pH, or by acidity of the interior of the cells of the respiratory center itself. But no one theory yet offered can account for all or even a large part of the hyperpnea of muscular exercise, and each of these theories has failed to gain general acceptance because of its inability to explain this most common and most powerful of all respiratory adjustments. Of one thing, however, there can now be little doubt, namely, that the action of known chemical substances directly upon the respiratory center can no longer be regarded as the most important feature in the control of respiration. This seemingly drastic conclusion has resulted from several factors, one of which was the brilliant discovery of the pressure receptors in the carotid sinus and aortic arch and of the chemoreceptors in the carotid and aortic bodies. This led to the realization that since reflexes had been demonstrated clearly to assume a share of respiratory control formerly accredited to the action of chemical substances upon the respiratory center, then other anomalies of respiration previously classified as "exceptions to the rule" might also be due to reflex factors.

Conclusions

Among the earliest explanations proposed for the control of respiration was that of Volkmann in 1841 and Vierordt in 1844, who believed that respiration was regulated chiefly by means of reflexes. One hundred years later this explanation again seems to be a very satisfactory one, though resting now on far firmer experimental support. In the intervening years all theories dealing with the control of respiration were concerned chiefly with the dominant effect of chemical substances acting directly upon the medullary centers. Probably

the most important discovery of the last century—more important than the finding of any new reflex or chemical stimulant — has been the realization that respiration is controlled not by reflexes alone, not by chemical stimulation of the medulla alone, but by the proper interaction of both factors. No reflex, no matter how strong, can stimulate respiration if the arterial CO_2 tension has been lowered abnormally; no chemical stimulant, no matter how great, can produce rhythmic breathing if the medullary centers have been completely cut off from all nervous influences including that residing in the pneumotaxic center. Respiratory alterations in general, and the hyperpnea of exercise in particular, cannot be explained by any single simple theory but only by a consideration of a number of known and probably many unidentified factors.

Some Physiologic Effects of Passive and Active Exercise: Training Effects on the Strength of Specific Muscle Groups

E. Corinne Fries, M.S., Madison, Wisconsin. In ARCH. P. T., 25:9:570, September 1944.

The first paper of this series described an electrically driven bicycle ergometer whereby it is possible to administer graded exercises ranging from those which are entirely passive to those involving hard active work. The device offers certain unique attributes for exercise studies, as it is possible to superimpose hard active work for the upper extremities on the motor-driven motion of the machine and at the same time have the legs continue their rapid passive rotatory movements. Thus, the relative effects of passive and active exercise may be compared directly in the same subject. This study was designed to demonstrate some of the differences in the local response of a body part to passive motion and active muscular contraction. The effects of daily training on the ergocycle on the strength of specific muscle groups are discussed in this paper.

Summary

Eleven healthy, normal young women performed a bout of combined active and passive exercise on a motor-driven bicycle ergometer ten minutes daily for twenty-one consecutive days. Specific muscle groups were tested by means of a modified Martin strength test before and after training. The data suggest that:

1. A short period of systematized daily training on a motor-driven bicycle ergometer will produce a demonstrable increase in muscle strength in those groups which are made to develop active tension during exercise. In this study strong voluntary contractions of the shoulder and abdominal muscles were superimposed on passive motion of the general body musculature. The subsequent augmentation in contractile power as a result of training was found to be limited primarily to these two groups which received active exercise.

2. In these trained, well coordinated subjects the flexors and extensors of the elbow joint were little employed to perform the strong arm movements; rather, the work was localized in the relatively more powerful protractors and retractors of the shoulder girdle.

3. The work of the muscles of the legs was seen to be not entirely passive, particularly in those groups which could aid in the maintenance of equilibrium.

4. The knee flexors, which were the most nearly representative of purely passive activity, did not exhibit a significant change in strength with training.

5. Nothing in this study indicates whether this rapid rise in muscle power due to voluntary exercise was not benefited by the fact that it was accompanied by the inciting stimulus of rhythmic and varied passive activity.

6. It is suggested that there might have been a physiologic relationship between the incidence of muscle soreness during training and the subsequent increase in muscle strength.

Diagnostic and Therapeutic Massage

Harold D. Storms, M.D., Toronto. In ARCH. P. T., 25:9:550, September 1944.

Massage frequently is prescribed without full appreciation of its special indications. A physician may order it because he can think of nothing else and feels that it will at least occupy the patient's mind in time. He may prescribe it with the idea that massage is soothing; and indeed gentle friction of the skin does have a soporific effect, though this is not a therapeutic one. Or he may employ it to improve the circulation or even to stimulate lymph flow. The circulation, however, can be altered more readily by diathermy and by active or passive muscle movements.

My own belief is that the proper use of massage is in the detection and relief of muscle spasm. In a certain narrow field it has both diagnostic and therapeutic value.

There is a tendency among physicians to neglect the muscular system. They have learned the origins and insertions of the muscles, but little about their function, and they fail to a large extent to take them into consideration in diagnosis and therapy. Even in cases of sprains and similar injuries the tendency is to think of the bones, ligaments, nerves and bursae. Yet it is the muscles about a joint which preserve its integrity and are the main structures injured when the joint is injured, either through direct trauma or through indirect trauma in their effort to limit an abnormal movement by passive forces.

Grading of Spasm in Infantile Paralysis

J. Wayne McFarland, M.D., and Dorothy A. Graves, B.E., R.P.T.T., Los Angeles. In ARCH. P. T., 25:9:556, September 1944.

The purpose of this paper is to present a method of grading muscle spasm in the disease infantile paralysis.

Soon after the Los Angeles County General Hospital commenced using the Kenny treatment for infantile paralysis, it became apparent that some scheme of grading muscle spasm was necessary in order that the physician might have a graphic picture of the patient's progress from week to week and be able to determine how rapidly the range of motion returned to normal after the initial symptoms had developed.

Summary

A simple method of recording muscle spasm in the acute stage of infantile paralysis and the degree of tightness or contracture present in the subacute and chronic stages of the disease has been presented.

It is apparent that the charts do not cover all the muscles or muscle groups in which spasm occurs. They have served rather as a guide in determining the amount of spasm present in the muscles most frequently affected and have given us a means of recording the progress of the release of this spasm from week to week.

It is not intended that this method shall take the place of goniometer readings or of minute muscle analysis, but for all practical purposes it works out as a convenient and easy method of recording spasm in the groups of muscles most frequently affected in the acute stage of poliomyelitis.

Education in Physical Medicine

Miland E. Knapp, M.D., Cleveland, Ohio. In ARCH. P. T., 25:9:521, September 1944.

Physical medicine this year finds itself beset by the most violent growing pains of its entire existence. After years of struggling in the dim obscurity of hospital basements and of valiantly trying to win through the barriers of doubt and distrust that had been firmly fixed in the minds of the majority of physicians, physical medicine has suddenly emerged into the bright sunlight and as a result is being subjected to microscopic dissection by the medical profession and the lay public alike.

Summary and Conclusions

Physical medicine is now presented with the greatest opportunities as well as the greatest responsibilities of its history. In order that opportunities may be utilized to the greatest advantage, and the responsibilities may be discharged to the greatest benefit of all, we of the American Congress of Physical Therapy must do everything in our power to further research and education in physical medicine.

On research both clinical and fundamental depends progress and development. We have only recently reached the level where preclinical research workers are willing to devote their energies to our problems. This is a healthy sign which indicates a bright future for physical medicine. Improvement in knowledge and improvement in teaching for the undergraduate, graduate and postgraduate physician and the technician alike must follow.

Ultraviolet Irradiation in Extra-Pulmonary Tuberculosis

Morris Rubenstein, M.D., Reconstruction Officer, Veterans Administration, Livermore, Calif. In MED. BULL. VETERANS ADMINISTRATION, 21:1:33, July 1944.

Conclusion

Both natural and artificial irradiation are of definite value in the treatment of various forms of extrapulmonary tuberculosis. Heliotherapy, if available, should be tried; if it is not available, irradiation from some form of quartz-vapor lamp or from a carbon arc-lamp should be used.

The degree of response will depend on the amount of involvement and the presence of other tuberculous lesions in the body. There is also some difference of opinion as to what regions of the spectrum are most efficacious and as to the tuberculous conditions that respond best.

Book Reviews

A Study of Absenteeism Among Women. *By S. Wyatt R. Marriott and D. E. R. Hughes. Paper. Pp. 12. Price, 2d. London: H. M. Stationery Office, York House, Kingsway, 1943.*

This report gives an account of a limited study of absenteeism among women carried out on random samples of the personnel at two Royal Ordnance Factories. The inquiry was undertaken by the Industrial Health Research Board of the Medical Research Council. It is concerned with the amount and distribution of absenteeism among women rather than with its causes. It is believed that this monograph will serve as a guide to similar investigations in other war factories.

Small Community Hospitals. *By Henry J. Southmayd, Director, Division of Rural Hospitals, The Commonwealth Fund, and Geddes Smith, Associate, The Commonwealth Fund. Cloth. Price, $2. Pp. 182. New York: The Commonwealth Fund; London: Oxford University Press, 1944.*

This monograph tells what the Commonwealth Fund has learned about the construction, organization and operation of small community hospitals in nearly twenty years experience, during which it has helped to build such hospitals from Maine to Mississippi and Utah. It gives a frank discussion of the major questions which such hospitals face: What communities should have hospitals? What area should a hospital try to serve? Who should run the hospital? How should it be staffed? Who should pay the bills? How can the hospital help its community to get better medical care?

It will surprise many physical therapists to know that physical therapy is not considered indispensable in these hospitals. The authors state: "Early attention should be given, in building a staff, to the choice of consultants in two medical specialties which are recognized as indispensable in the daily work of the hospital—roentgenology and pathology."

Aimed directly at the nonprofessional men and women who take the responsibility for the community hospital, and written in nontechnical language, the book will be useful also to hospital superintendents, architects, auditors, and to all those physicians who are interested in the development of rural medicine.

Vascular Spasm: Experimental Studies. *By Alexander John Nedzel, M.D., M.S., Associate Professor of Pathology, University of Illinois College of Medicine. Contribution from the Department of Pathology, Bacteriology and Public Health in the College of Medicine. Illinois Medical and Dental Monographs, Vol. III, Nos. 3-4. Cloth: price, $2.75. Paper: price, $2.25. Pp. 151, with 161 illustrations. Urbana: The University of Illinois Press, 1943.*

This monograph represents numbers 3 and 4 of volume III of the Illinois Medical and Dental Monograph Series. It shows the most important agents that participate in the pathogenesis, shows their role and explains their action. These studies of vascular spasm present a great amount of experimental material. The author studies the environmental conditions of the body which influence vascular spasm in its beginning and its course, so that the place of each pathogenetic complex may be defined and its mode of action explained.

These studies concentrate on the vascular system as the final regulator of the functions of the cell in its readjustments to the changing demands upon its activities. It shows that it is finally the constantly changing permeability of the capillary endothelium which regulates these highly important and mutable activities of the cells and which permits the survival and well-being of the living organism. The purpose of the vascular bed is to protect us from injurious exogenous and endogenous agents and to sustain our normal life. Any discrepancies in behavior of this part of the vascular system will lead to impaired functions, resulting in injury of particular regions, and consequently to the precipitation of disease.

These studies should be read by all interested in modern theoretical pathology and medicine, as they are directed toward clarifying the pathogenesis of different diseases.

Medical Care of the Discharged Hospital Patient. *By Frode Jensen, M.D., Instructor in Medicine, Syracuse University College of Medicine; H. G. Weiskotten, M.D., Dean and Professor of Pathology, Syracuse University College of Medicine, and Margaret A. Thomas, M.A. (Oxon). Cloth. Price, $1. Pp. 94. New York: The Commonwealth Fund, 1944.*

One of the most prominent features of all postwar planning is the development of satisfactory programs for the complete and continuous medical care of the entire public regardless of financial status. The American Medical Assocation for years has pointed out the need for such experimentation.

Although we have in this country more groups and agencies interested in the welfare of the citizens, it is apparent that neither the medical profession nor the public is entirely satisfied with the present methods of providing medical care for the great mass of the public.

This monograph is the story of a successful experiment in extending the range of a hospital's service, improving the care of chronically ill patients, and relieving congestion in the medical wards. The study was undertaken by the authors after a preliminary survey had revealed that 90 per cent of the cost of service on the general medical wards at the University Hospital was for chronic illness and that only a third of these patients were receiving satistfactory medical supervision after discharge.

It was found that, because of proper care in the home, many patients could be discharged earlier, and rehospitalization was greatly reduced.

This book is of interest to hospital administrators, physicians, health officers, welfare leaders and others concerned with community health.

The Neurosurgical Patient: His Problems of Diagnosis and Care. *By Carl W. Rand, Clinical Professor of Neurological Surgery, University of Southern California School of Medicine, Los Angeles, California. Cloth. Price, $4. Pp. 576, with 121 illustrations. Springfield, Illinois: Charles C Thomas, 1944.*

This book is a novel, an interesting and informal clinical presentation of some fifty-four neurosurgical subjects which are useful to practitioners and students. The author in his preface makes a statement that should comfort all students of neuro-anatomy: "Indeed, one may devote a lifetime to the study of various tracts and nuclei and syndromes, even then to become frequently confused in the maze of nervous pathways." The author, therefore, follows a scheme in this book of giving the student established landmarks and hopes to arouse his curiosity for further details.

Complicating technical terms are avoided. The discussions are given in a conversational rather than in a textbook fashion. The literary style is pleasing, clear, and easy to understand. The illustrations are excellent, mainly comprising gross specimens and x-ray plates.

It is recommended to every general surgeon and medical student as a readable and dependable text on tumors of the brain; on traumatic conditions of the brain, spine and spinal cord, and other neurosurgical conditions.

The Diet Therapy of Disease: A Handbook of Practical Nutrition. *By Louis Pelner, M.D., Assistant Attending Physician, Long Island College Hospital, Greenpoint Hospital, and Brooklyn Cancer Institute. Cloth. Price, $3.75. Pp. 143, with 6 illustrations. New York: Personal Diet Service, 1944.*

In the preface the author states: "Perhaps the title 'The Diet Therapy of Disease' is a little too ambitious, since there are but few diseases that can be treated entirely by diet." He further states: "Such standard texts on diet therapy as McLester, Bridges, Baborka, Newburgh were freely consulted. If this book serves to introduce the physician to these 'gold mines' of information, its purpose will be more than fulfilled."

In discussing the diets the pathophysiology of the disease for which the diet is indicated is briefly given. The book is a simple, easily understood text on diets.

Treatment of the Patient Past Fifty. *By Ernst P. Boas, M.D., Associate Physician, Mount Sinai Hospital, New York City; Assistant Clinical Professor of Medicine, Columvia University. Second Edition. Cloth. Price, $4. Pp. 414, with 34 illustrations. Chicago: The Year Book Publishers, Inc., 1944.*

The involutional processes become clearly distinguishable at the beginning of the sixth decade of life. This book concerns itself with the patient past fifty. The diseases described are those that are common in advanced life or whose occurrence is practically confined to the period of senescence.

The middle-aged, the elderly, and the aged make up a steadily increasing proportion of the physician's practice. The practitioner, by studying the natural history of disease in his aging patients and by utilizing in their treatment the fruits of medical investigation and knowledge, is able to defer many of the chronic diseases that are erroneously attributed to old age. Thus he can actively share in the chief task of medicine during the coming generation—the extension of the human life span and the preservation of the aging person as a healthy useful member of society.

The physical therapist should be interested in the author's discussion of rest and exercise for the aging individual. There should be no attempt to make a trained athlete of a person advanced in years; however, a certain amount of well tolerated activity will make the circulatory apparatus more efficient and will aid in preventing obesity. This book should be in the library of every general practitioner.

Plaster of Paris Technic. *By Edwin O. Geckeler, M.D., Associate Professor of Orthopedic Surgery, and Chief of Fracture Service, Hahnemann Medical College and Hospital, Philadelphia. Cloth. Price, $3. Pp. 220, with 208 illustrations. Baltimore: Williams and Wilkins Company, 1944.*

Descriptions of plaster of Paris for immobilization are found in ancient history. Various forms of rigid bandages for immobilization were used as early as 1600 B.C. by the Egyptians, who applied gums and waxes to stiffen their surgical dressings in a manner similar to their method of embalming. More than a thousand years later Hippocrates described a similar method of treating broken limbs.

The recent development of skeletal fixation splints are valuable although plaster of Paris remains the most satisfactory form of immobilization in orthopedic and fracture surgery. There is no other modern book on this subject and textbooks on fractures and orthopedic surgery devote only a short space to this topic.

This combination of text and illustrations is a splendid contribution to the methods of using plaster of Paris in surgery. It is an art to use plaster of Paris skilfully, and this book explains the art. It is recommended as a suitable textbook for instruction of both graduate and undergraduate medical students and provides practical working knowledge valuable in everyday practice and especially important in the treatment of war injuries and burns.

The Diagnosis and Treatment of Acute Medical Disorders. *By Francis D. Murphy, M.D., F.A.C.P., Professor and Head of the Department of Medicine, Marquette University School of Medicine, and Clinical Director of the Milwaukee County General Hospital and Emergency Unit, Milwaukee, Wisconsin. Cloth. Price, $6. Pp. 503. Philadelphia: F. A. Davis Company, 1944.*

This is an essentially practical book. Long discussions on etiology and pathology are not given, but diagnosis, especially differential diagnosis, and treatment are emphasized. The management of the patient is gone into in great detail. The volume is unique in that it is devoted entirely to the diagnosis and treatment of the acute conditions which ordinarily come under the observation of the internist and general practitioner. It makes it possible for the present hard-pressed physician to obtain urgently needed help without searching numerous comprehensive texts.

Few men are so well qualified to write such a book as this as is Doctor Murphy, who has been for more than twenty years the Clinical Director of the Milwaukee County General Hospital and Emergency Unit, a teacher and a practitioner.

This volume is recommended to the general practitioner and medical student as giving the diagnostic procedures and methods of treatment which are helpful in the management of the acute case.

The First Woman Doctor: The Story of Elizabeth Blackwell, M.D. *By Rachael Baker. Cloth. Price, $2.50. Pp. 246, with illustrations. New York: Julian Messner, Inc., 1944.*

It is appropriate to review this book at this time. In the year that this book appears the faculty of the medical school with the approval of the Harvard Board of Overseers and the Harvard Corporation will break the traditions of 163 years and invite women to become medical students. In 1850 the faculty of Harvard decided to admit a woman, but in the face of frowning doctors' resolutions she withdrew her application. Dr. Elizabeth Blackwell, the first U. S. woman doctor, never applied at Harvard because Geneva Medical College took her. She was pioneer not only of medicine as a career for women, but innovator of some of the outstanding medical reforms of her day. This small, well-bred woman with her shy manner and Quaker-like bonnets was the first woman to enter an American hospital as an interne, the first woman to be enrolled on the Medical Register of Great Britain, the founder of a great women's hospital, staffed by women, operated by women, for women and children alone. She founded the first school of nursing in America and founded a medical school for women, introducing new subjects and a longer, more thorough course than any offered at any American college. She helped to establish the battlefield nursing services of the Civil War.

Doctor Blackwell taught health education, hygiene, preventative medicine in a day when these words were new. She introduced new and humane ideas in the care of the sick: the "home visitor," precursor of the modern visiting nurse. She wrote books on health, social hygiene and disease prevention which were renounced at first, then accepted as textbooks in the subject. She founded the National Health Society in England in 1871. She lived to see her portrait hung in honor in the medical college that had admitted her as the result of a student prank!

This book should be in the library of everyone interested in medical history.

Health Instruction Yearbook, 1944. *By Oliver E. Byrd, Ed. D., Associate Professor of Hygiene and Director, Division of Health Education, School of Health, Stanford University. Foreword by C. Morley Sellery, M.D., President, American School Health Association, Cloth. Price, $3. Pp. 354. Stanford University, California: Stanford University Press, 1944.*

The health instruction program in our schools is of vital importance, and in no area of instruction is progress greater and changes more frequent than in the field of health knowledge. These "Health Instruction Yearbooks" by Professor Byrd are important contributions in this field. It is an annual publication and thus keeps the references current.

In this 1944 Yearbook, Byrd furnishes completely new material, 305 articles of the 1,347 articles which have been published in public health, medical and allied scientific journals are condensed in this book. These are the outstanding articles in the field of health that have appeared in the last year.

An introductory statement for each chapter is given, providing a synthesis of the articles which follow and thus making it easier to use as a text. The articles are summarized and brought together under the chapters in readily available form. The source of each article is always given so that reference may be made to the complete article.

This is a new type of health text organized in a manner that calls attention to the total field of health, but current problems form the basis of the book. It can be highly recommended to students and teachers of public health. Public health workers will find in these pages a wealth of up-to-the-minute developments, statistics and illustrative matter of current interest and importance. While this publication is not intended to meet the needs of technically trained persons, it contains much material valuable for reference to physicians and physical therapists who speak before lay audiences.

Simplified Diabetic Management. *By Joseph T. Beardwood, Jr., A.B., M.D., F.A.C.P., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania, Philadelphia, and Herbert T. Kelly, M.D., F.A.C.P., Associate in Medicine, Graduate School of Medicine, University of Pennsylvania. Fourth edition. Cloth. Price, $1.50. Pp. 172, with 9 illustrations. Philadelphia, London & Montreal: J. B. Lippincott Company, 1944.*

Because of the advances in diabetes, it has again become necessary to make a revision of this manual. The advances in insulin therapy, the introduction of still another type of long-acting insulin show some of these advances. The war and food rationing have made it advisable for diabetics, oftentimes, to remold their diets and to use types of food different from those customary only a few years ago. These are included in this book. Many of the chapters have been simplified, particularly that on acidosis; a short chapter on pregnancy in the diabetic has been included.

Diabetes is now controllable by anyone knowing the principles of diet, and a great many cases must of necessity be handled without the aid of hospitalization. The use of the "Diet Prescription Chart" makes the calculation of the diabetic's diet a simple matter. Of equal importance with the calculation of the diet is its presentation to the patient in an understandable form, and this problem so perplexing for the average age diabetic is here simplified.

The medical profession and the diabetic public will find this book of great interest and value.

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